The Public Hearing in the above-entitled matter came on for hearing before Laurasue Schlatter, Administrative Law Judge, taken before Marcia L. Menth, a Notary Public in and for the County of Wright, State of Minnesota, taken on the 23rd day of October, 2017, at Harold E. Stassen Building, 600 North Robert Street, St. Paul, Minnesota, commencing at approximately 10:00 a.m.
A P P E A R A N C E S

APPEARING AS THE HEARING OFFICER:

LAURASUE SCHLATTER
ADMINISTRATIVE LAW JUDGE
OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, Minnesota 55101

E-mail: laurasue.schlatter@state.mn.us

ALSO PRESENT:

Gerald Blaha - MPCA
Patricia Engelking - MPCA
Elizabeth Kaufenberg - MPCA
Deborah Klooz - MPCA
Scott Kyser, P.E. - MPCA
Shannon Lotthammer - MPCA
Phil Monson - MPCA
Carol Nankivel - MPCA
Adonis Neblett - MPCA
Catherine Neuschler - MPCA
Edward Swain - MPCA

*The Original is in the possession of Administrative Law Judge Laurasue Schlatter.
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*All exhibits retained by Judge Schlatter.*
PROCEEDINGS

(At this time Exhibit Number 1000 was marked for identification by the Court Reporter.)

THE JUDGE: My name is Laurasue Schlatter, administrative law judge with the state Office of Administrative Hearings. I thank all of you for taking the time to be here today to participate in the public rulemaking process on this important matter of public concern.

Just as a housekeeping matter, if anyone is looking for restrooms, they are out those doors (indicating), down the hall and to your left. And we are going to be taking a couple of breaks this morning. We'll be taking a break about 11:15 for ten minutes so that the court reporter can give her hands a break.

And then we will be taking a half hour break at 12:30. The cafeteria downstairs closes at 1:00. So, if you're going to have access to food in the building, 12:30 is the time to do it.

There's also options outside of the building, but to keep our break time to a minimum we thought we best do it at 12:30 so you can eat right here in the building if you want to.

In addition, pursuant to Minnesota
Rule 1400.8000 I as a presiding judge have the authority
to ban the use of cameras in the hearing room during the
course of this proceeding. And it is my order that no
cameras will be allowed during these proceedings. And
that includes cell phone cameras.

So, please, members of the audience,
including the media, are hereby ordered to take out your
cell phones, turn them off and put them away.

Any unauthorized use of cell phones
as cameras or any other cameras will result in -- or the
use of any other cameras will result in sanctions,
including individuals being barred from proceedings.
You're certainly welcome to take notes, but not to use
your cell phones as cameras.

Today is October 23, 2017, it is a
little bit after 10:00 a.m and we are here for a public
hearing in the matter of the proposed rules of the
Minnesota Pollution Control Agency amending the sulfate
water quality standard applicable to wild rice and
identification of wild rice waters, which is Minnesota
Rules Parts 7050.0130, 7050.0220, 7050.0224, 7050.0470,
7050.0471, 7053.0135, 7053.025, and 7053.0406.

This matter will be referred to as
OAH Docket Number 80-9003-34519. And I know that there
are some documents that may have a zero after the 9003
and that zero is incorrect, it should be just 9003-34519.

Please put this docket number in the subject matter line of any correspondence or comments you're submitting to my office so that that can be properly routed to me. Also, for your information, the Revisor's number on the rules is RD4324A.

The Office of Administrative Hearings is independent of the Minnesota Pollution Control Agency, which is the agency that is proposing to adopt the rules that are the subject of today's hearing, as well as the groups or any individuals who are participating in today's hearing.

The role of our office is to provide hearings that are fair to all participants. The legislature directs in Minnesota Chapter 14 that rulemaking hearings be conducted so that members of the public can be heard as part of the rulemaking process.

I am here to ensure that there is procedural fairness, to ensure that we are courteous to each other, so that all interested parties can be heard and to draw out information from as many voices as possible. I am interested in hearing what each one of you has to say.

An underlying assumption of this
process is that we rely on the wisdom of the group. Thus, we are grateful that you are contributing your thoughts, experience, and expertise to the formation of substantive rules.

There is a handout back on the side there entitled "OAH Rule Hearing Procedures." If you don't have a copy, please take a moment to pick one up. It describes the procedures set by the legislature for hearings like this.

I'm going to go ahead and cover some of those highlights now so you know how we're going to proceed. This hearing is part of the process by which rules are adopted under the Minnesota Administrative Procedure Act.

During this rulemaking proceeding, the Minnesota Pollution Control Agency is required to, first of all, document its statutory authority to adopt the proposed rules.

Second, to demonstrate that it has fulfilled all the relevant legal and procedural requirements of the law. And third, to demonstrate the need for and the reasonableness of each portion of the proposed rules with an affirmative presentation of facts.

Those are the three big issues I'm
required to review as part of this proceeding. Some of you are here to express your thoughts or views on various rules. That is very helpful to the MPCA and as well as to me.

My job is not to rewrite the rules based upon the views of participants or to select one set of proposed reasonable rules over another set of proposed reasonable rules. My job is to ensure that the statutory requirements are met for rulemaking.

Again, to make sure that all of the statutory requirements, legal and procedural requirements have been met, that the agency has the statutory authority to adopt the rules and that the rules themselves are needed and reasonable.

So, the road map for this hearing is as follows: After I complete my introductory remarks about the hearing procedures, I will introduce the panel that's here from the MPCA. They're sitting here on the other side of the room there.

Next the MPCA will submit the exhibits it wishes to include in the official hearing record and will summarize the exhibits so that everyone has an idea of what is going into that record.

There are copies of the exhibits over on the side here in the binders. You may look at the
exhibits during a break, even quietly during the hearing, but please leave them there.

I think if you like you could probably take them back with you to your seat for a couple of minutes, but be sure you return them back to the side, they need to not leave the room.

There are copies of those exhibits online and you are free to access them online either through our website or the MPCA's website. If you have questions about them I'm sure that the MPCA staff -- about how to access them, the MPCA staff can work with you and help you with that.

After the exhibits are entered into evidence the MPCA staff will make an oral presentation of the proposed rule amendments and the reasons for and need for them. But the rest of the hearing time, most of this hearing time has been allotted for statements and questions from members of the public. And that's the real reason we're here today.

In order to make sure we have an accurate record of the number of people attending the hearing, I ask that everyone sign the hearing register located on the registration table in the back.

If you wish to speak or to submit a written statement today you're required to sign the
hearing register. If you wish to speak please place a check mark in the appropriate column on the hearing register.

If anyone who wishes to speak or asks questions is under time constraints today, please let Carol Nankivel, who is at the back table, know. Carol is there raising her hand. And she will relay that information to me.

So, if you need to leave at a particular time and you're concerned that you're not going to get a chance to speak, please let her know, she'll let me know and we'll make sure we work you in.

I'm going to call you generally in the order listed on the hearing register. Do we have more than one sheet, more than one set going at a time?

MS. NANKIVEL: No.

THE JUDGE: So, I will call you generally in the order in which you were signed in. When your name is called please come up to the table in front so that I can hear you and the court reporter can hear you.

Speak into the microphone, there's a button with a little ear sound icon on it, press that button, it will turn the microphone on, make sure the microphone is on.
There's a second microphone on that table and that microphone is recording for our record. So, we have a court reporter taking down what you're saying and we're also making a digital recording, that's what the second microphone is for.

When you begin please state and spell your name, give your address or at least state the town that you're from and identify the group or interest that you represent, if there are any interests that you represent that are not an official group. If you do represent an official group please state what that group is.

I expect that we will have time for everyone to be heard today, but it will be helpful if you organize your remarks and focus on the highlights of them. You can, of course, enter any written comments as exhibits into the record of this matter if you like or you can submit written comments to me after the hearing.

I want to ensure that everyone has time to speak and that everyone who wants to be heard is heard. And so, for that reason, each person today will have an initial five minutes to speak.

People are not permitted to cede their time to other people. So, you have five minutes. If you have a friend who doesn't want to speak, you
cannot take your friend's five minutes. You just have five minutes.

You will notice -- I will be timing you with my phone. You will notice that there's actually a little sand timer on the table. If that helps you to -- that is a five-minute timer.

If it helps you to be able to see how your time is going you can feel free to flip that timer over and you will know exactly how much time you have left and you'll know that your five minutes is an exact five minutes.

I've tested it, it's a five-minute timer. That's up to you. If it's going to make you feel pressured, you don't have to use it.

If everyone who wants to speak gets a turn and we have time left, we are happy to have people come back and speak again. But we want to make sure that we get through everybody in the room and that everybody has a chance to speak initially.

If you decide that you prefer to attend a different public hearing, we have other hearings coming up in the next week and a half or so at the following dates and locations.

Tomorrow we have a hearing in Virginia, Minnesota from 4:00 to 9:00 p.m at the Mesabi
Range College. On Wednesday, October 25th, we have a hearing in Bemidji from 4:00 to 9:00 at Bemidji State.

Thursday we have a hearing, October 26th, we have a hearing in Cloquet at the Fond du Lac Tribal Community College from 3:00 to 7:00 p.m.

Next Monday we have a hearing in Brainerd from 4:00 to 9:00 at Central Lakes Community College.

And finally, on Thursday, November 2nd, we have another hearing in St. Paul at the Minnesota Pollution Control Agency. And there will be video links during that hearing to Detroit Lakes, Duluth, Mankato, Marshall, and Rochester.

So, there are a number of opportunities for people to participate in these hearings. And you can find copies of the hearing schedule with all this information, I believe, over on the table. Is that right? Yes, over on the side there.

I do want to caution you that I will not allow people who have already spoken at one hearing to speak at another hearing unless all of the people at the later hearing who want to be heard have a chance to speak.

So, that's just fair. It's their first time at a hearing and they haven't spoken yet, but you've already spoken at another hearing, you will be
put in the back of the line.

This is for all that I've given you, all these rules, a fairly informal process. I'm here to ensure that we are courteous to each other and the process runs smoothly. As you come up to make your comments please keep these things in mind.

A rule hearing like this is similar to a legislative hearing or a meeting of a local board or city council. Any speaker may ask questions of the agency panel and may also be questioned by the agency panel, by me or by other persons who are present at the hearings.

But because this isn't like a court hearing, you don't need to make your points by asking questions. The most direct way to make your views known is simply to say what you are thinking, to really go directly to the point.

It will be most helpful to me if you can be specific in your comments, tell me which rules or rule subparts you support or you object to and why. The record we make today may be reviewed by others later and we want to be sure that the matter you are addressing is also clear to those people.

Again, because of the number of people who want to speak today, each person will have
five minutes to speak initially, another opportunity
later as time allows.

And again, I'm reminding you that
this hearing is being transcribed by the court reporter
and we have to keep an accurate record.

So, it's important when speaking to
remember to speak clearly, slowly and loud enough to be
heard, to make all statements and responses audible as
opposed to just giving a nod of the head or a gesture,
to please spell proper names and technical terms the
first time you use them

There are a lot of technical terms in
this proceeding. Don't assume that I know how to spell
them or the court reporter knows how to spell them
Explain what acronyms stand for.

Please don't be offended if I stop
you and ask you how to spell something or what it was
you said. I want to make sure that we've got a good
record.

Don't interrupt someone when
speaking. Only one person speak at a time, that will
ensure that we have a good record, that the court
reporter is getting everything she needs to get down and
that everybody can tell what you said.

If you have a written copy of your
remarks that you can leave here as an exhibit, please do so, that is helpful to me. If I can go back later and read what you said, that is extremely helpful.

Also, if you ask questions of agency personnel, agency staff, they may or may not respond directly to you at this hearing. That's up to them. I'm sure they will respond if they feel they can respond at this time.

However, they also will have the opportunity to respond during the written comment period. And I'm going to talk about that now. But they also have the option to say we can't respond to you right now at the hearing.

Now, let's talk about the written comment period. Minnesota Statute Section 14.15, Subdivision 1 provides that the administrative law judge may by order keep the hearing record open for up to 20 days after the end of the public hearing. I am issuing that order now.

The comment period shall be extended for 20 days from the close of the final public hearing, which takes place on November 2, 2017. So, this means that after the close of the November 2, 2017 hearing there will be an additional 20 calendar days in which you can submit written comments.
Thus, you have until November 22, 2017 at 4:30 p.m. to submit comments, that’s the end of the day before Thanksgiving. You can all eat turkey after that.

I refer you to the handout for the address to send your comments to be sure that I receive them. You can send it by mail or fax or E-file them on our website. Again, they must be received by 4:30 p.m on November 22, 2017.

Our office will post all comments we receive on our rulemaking website for all to review. And the MPCA also has a rulemaking website, their website is linked to our website. So, you can get to it either way.

Again, please include the OAH docket number, which is 80-9003-34519, in the subject line of any comments you make so that your comment gets posted in the right place and gets directed to me. Otherwise, it could get misdirected to another judge or rule file.

After November 22, 2017 there will be a five working day rebuttal period for anything that was filed by 4:30 p.m. on November 22nd. So, that’s a chance to write something that is in rebuttal to something that has already been filed.

That five-day period is meant for
comments about the comments that have already been made. It is not a time to introduce new matters. And that is, again, pursuant to our Statute 14.15.

Because there's a holiday in there, the rebuttal period will not open until after the Thanksgiving holiday. So, we will begin accepting rebuttal comments for posting on Monday, November 27, 2017 and will continue to accept rebuttal comments through Friday, December 1, 2017 at 4:30 p.m.

Again, the rebuttal comments can only respond to comments submitted by the end of the day on November 22, 2017. Is that clear to everybody?

MS. MACCABEE: Your Honor, if an individual submits their comments by mail on November 22nd, how will the other persons know what's in the contents of those comments?

THE JUDGE: If we don't receive it by the end of the day on November 22nd it's late.

MS. MACCABEE: I'm sorry, maybe I wasn't clear. Will those comments all be immediately scanned so that other individuals can read those comments and then respond to them in rebuttal?

THE JUDGE: Everything we receive by 4:30 p.m. on November 22nd will be scanned and posted, yes, but we have to receive it by 4:30 p.m. on
November 22nd, yep.

MS. MACCABEE: Thank you.

THE JUDGE: After December 1, 2017 I will prepare a report that contains my conclusion about whether the MPCA has met its statutory burdens in this matter.

First and foremost I will focus on whether the agency has documented its authority to enact the rules, whether the agency has fulfilled all the required procedures, and whether the agency has demonstrated the need for and reasonableness of each portion of the proposed rules.

You can expect my report approximately 30 days after the last comment deadline unless an extension is necessary. If you want to receive a copy of my report please indicate that on the sign-in sheet in the back.

If you provide an e-mail address we will e-mail you. We will see that you receive notice when the report is available and how to obtain a copy. We will ensure that it gets to you and we are eager for you to have a copy of my report.

The handout that I mentioned goes into more detail about the process and contains the important address information that you will need to
submit written comments. Please keep a copy of that for your records.

    Again, I really request that you put in the subject line of your correspondence or e-mail the OAH docket number, which I'm going to give you one more time, 80-9003-34519, so that I am sure to receive it.

    Before we begin are there any questions about the procedures or what we are doing today? Anybody? Okay. I'm glad we have a court reporter because I realized I forgot to turn my recording on, so we have our backup. We are now on the digital record as well.

    So, I'm going to introduce now Adonis Neblett from the Minnesota Pollution Control Agency. And, Mr. Neblett, would you like to introduce the rest of the agency staff who are with us today?

    MR. NEBLETT: Yes, I would, Your Honor.

    THE JUDGE: Thank you.

    MR. NEBLETT: Good morning, Judge Schlatter, all present.

    THE JUDGE: I think maybe pull your mic a little closer.

    MR. NEBLETT: For the record my name is Adonis Neblett, I'm the general counsel at the
Minnesota Pollution Control Agency. My first name is spelled A-d-o-n-i-s and my last name is spelled N-e-b-l-e-t-t.

I'm appearing on behalf of the agency in this rulemaking proceeding, which we are proposing to amend the sulfate water quality standard applicable to wild rice and identification of wild rice waters in Minnesota Rule Chapter 7050 and 7053.

If I may, I'll introduce the members of the rulemaking team who are present to provide a presentation and also to respond to questions as appropriate and able.

Immediately to my right is Shannon Lotthammer, Division Director for the Environmental Analysis and Outcomes Division. She will be making the principle presentation.

Next to her is Ed Swain, a research scientist, Environmental Analysis and Groundwater Services unit. At the end of this table is Catherine Neuschler, Section Manager in the Water Assessment section.

Immediately behind me is Gerald Blaha, research scientist in the Water Quality Standards unit. To his right is Elizabeth Kaufenberg, research scientist in the Effluent Limits unit. At the -- oh,
okay. All right.

So, immediately behind me is Phil Monson, research scientist, Water Quality Standards. At the end of the table behind me is Gerald Blaha. Additionally, later Scott Kyser will be joining us, an engineer in the Effluent Limits unit.

Further present is Catherine Neuschler -- no, excuse me. Further present is Carol Nankivel, rule coordinator. Also present is Patricia Engelking, project manager.

Additionally, we have Deb Klooz, a paralegal here in the Legal Services unit who helped assemble the record documents.

At this time, if I may, I'd like to submit into the hearing record the exhibits outlined in the notebook that I believe is before you. I will first provide a brief description of the exhibits. A copy of the exhibits are also, as indicated, available for all to peruse.

The purpose of these exhibits is to document that the agency has the legal authority to adopt these rules, to demonstrate that we have fulfilled all legal and procedural requirements for promulgating the rules, and to demonstrate the need and reasonableness of the rules.
If I may, I'll now walk us through the substantial list. And when I'm able I will try to summarize the exhibits. First in the various notebooks is our request for comments published in the State Register dated October 26, 2015.

Also, next we have Exhibit B. And I understand, Your Honor, that you may be renumbering these different than I am describing them.

THE JUDGE: I may go through and renumber these exhibits simply for ease of reference in my report. They will be described in the same way, but I may go through and number them just starting with Exhibit 1, Exhibit 2, Exhibit 3. And if I do that it will be made clear at the front of my report.

MR. NEBLETT: Thank you. I will continue on with identifying our exhibits by the alphabet, but I hope that doesn't cause any great consternation. I could not begin to track the numbers.

Exhibit B was a petition for rulemaking submitted by the Minnesota Chamber of Commerce on December 17, 2020 and memorandum in support. Exhibit C, the rules as proposed --

THE JUDGE: Mr. Neblett, that was December 17, 2010; is that correct?

MR. NEBLETT: 2010.
THE JUDGE: Sorry to interrupt.

MR. NEBLETT: My apologies if I misspoke. The Exhibit C is the rules proposed, including the Revisor's approval dated July 24, 2017.

Exhibit D is a Statement of Need and Reasonableness dated July 17, 2017 and two accompanying exhibits in the form of two stand-up separate notebooks containing actual exhibits to the SONAR. So, two attachments.

Exhibit E, the transmittal letter and certificate of mailing of the Statement of Need and Reasonableness to legislative reference library.

The notice of hearing is Exhibit F, as published in August 21, 2017 State Register and posted on the MPCA web page and notice of additional hearings as published in September 18, 2017 State Register and also posted on the MPCA web page.

Exhibit G is the certificate of mailing of the notice of hearing and certificate of mailing of the notice of additional hearing to the rulemaking mailing list and a certificate of accuracy of the mailing of those lists.

Exhibit H are certificates of giving additional notice. H1 is a certificate of providing additional notice of the August 21, 2017 notice of
hearing. Exhibit H2 is the certificate of providing additional notice of the September 18, 2017 notice of hearing, additional date and location.

Identified as Exhibit I, written comments received during the prehearing comment period. Those are not actually included in these notebooks that we entered. They are available at the Office of Administrative Hearings website.

We have a placeholder for approval to omit text from the State Register. However, this is indicated as not applicable because no such omission was made.

Exhibit K are other documents or evidence to show compliance with any other law or rule which the agency is required to follow in adopting this rule.

Exhibit K includes four specific documents. K1, notices to legislative chairs and minority leaders as required by Minnesota Statute Section 14.116, dated August 21 and September 18 of 2017 respectively.

Notice to Department of Agriculture is required by Minnesota Statute Section 14.111. And that is dated July 19, 2017. Notice to and acknowledged by Minnesota Management and Budget as required by

And next is notices sent to the governing body of each municipality bordering or through which affected waters for which standards are sought to be adopted flow as required by Minnesota Statutes Section 115.44, Subdivision 7. Those documents are respectively K1 through K4.

Additionally, we have also -- we also provide an Exhibit L. In Exhibit L we have materials submitted -- additional materials submitted for this hearing and they are a series of peer-reviewed technical articles identified as L1 through L9.

I won't necessarily read each and every one of these articles by titles. The L1 is an article by Bolton and Menk dated 2017. L2 is by Ng., et al, also dated 2017. L3 is by Myrbo, et al, dated 2017. L4 is by Pollman, also dated 2017.

L5 is yet another article by Myrbo, et al, dated 2017. L6 is errata correcting minor errors to the SONAR and attachments to the SONAR. L7 is the MPCA presentation that will be provided, given at this hearing and other hearings. A copy of the slides are L7.

L8 is a peer-reviewed technical article by John Moyle dated 1975. And L9 is MPCA's
changes to specific water identification numbers, also referred to as WIDs.

At this time, Judge Schlatter, the MPCA would request that Exhibits A through L be received and accepted into the record.

THE JUDGE: Before I go ahead and accept those materials are there any questions from members of the audience today? Ms. Maccabee, I believe you are.

MS. MACCABEE: Are Exhibits 1 through 46 that were identified on the website part of one of these exhibits? And if so, which one?

MR. NEBLETT: Yes, 1 through 46 represent the attachments to the SONAR, Attachments 1 and 2 to the SONAR. Attachment 1 would be the SONAR Exhibits 1 through 21. Attachment 2 or Notebook 2 would be SONAR Exhibits 22 through 46.

MS. MACCABEE: And that is what letter exhibit?

MR. NEBLETT: That would be D.

THE JUDGE: Other questions? Yes?

MALE SPEAKER: I'd like to know, of the articles that you went through, the list, are they all accepted for publication? Have they been published?

I believe the materials that were
shared on the website, one of those articles has been submitted, but it has not been accepted for publication yet.

So, therefore, you need to be careful about submitting something into the record that is not absolutely accepted for publication. Can you clarify that, please?

MR. NEBLETT: I'll ask Ed Swain to clarify.

MR. SWAIN: The one article by Moyle that was listed as submitted and not accepted was accepted a few weeks ago.

MALE SPEAKER: The Pollman one I think it was?

MR. SWAIN: Pollman was also accepted. Yeah, L2, Ng., et al, that's spelled N-g, has been published. L3, Myrbo, et al, is in press, it's accepted. L4, Pollman, et al, is accepted and in press.

L5, Myrbo, et al, accepted and in press. L6 was the errata, that's not a peer-reviewed item. L7, PCA presentation that's to be made today and others is not peer reviewed, it's a presentation.

L8, Moyle, 1975, I think that was a memo, not a peer-reviewed article. And L9, MPCA changes to specific water identification numbers, WIDs, is not a
peer-reviewed item but it's our document.

MALE SPEAKER: Thank you.

THE JUDGE: Okay. Thank you. Any other questions? Okay. The documents -- all of the documents that have been identified are accepted into the record. Thank you, Mr. Neblett and staff.

You can put them right down there (indicating). Thank you. I have copies of everything here as well. Is that all, Mr. Neblett?

MR. NEBLETT: No. If I may, I'd like to thank you for a clarifying question and for the clarification by Ed. Lastly -- and again, just -- we have individuals here present that may be able to answer questions as indicated.

If questions involve specific legal or regulatory interpretations, et cetera, or go beyond factual clarifications and procedural matters, we may need time to confer amongst ourselves and determine whether or not we can respond appropriately here or whether we need to make reference to other documents in order to provide you with a considered response.

In some instances it may be our determination that it's best just to respond to the comment or question during the post-hearing comment period. That is all. We will otherwise do our best to
respond. Thank you.

THE JUDGE: Thank you. And now, I think the agency has a presentation, is that --

MR. NEBLETT: Shannon Lotthammer.

THE JUDGE: Ms. Lotthammer, you may proceed. Thank you.

MS. LOTTHAMMER: Thank you, Your Honor. And thank you for everyone that's here today. My name is Shannon Lotthammer, it's spelled S-h-a-n-n-o-n, L-o-t-t-h-a-m-m-e-r.

And I am the director of the Environmental Analysis and Outcomes Division, which is the part of the Pollution Control Agency that does water quality standards, rulemaking, and rule revisions, in addition to other duties.

So, I appreciate the opportunity to be here today to provide a brief presentation of the rule revisions that we're proposing. The intent of this presentation is to highlight aspects of the rule proposal.

And all of the details can be found in the documents that Adonis just submitted into the record, particularly the Statement of Need and Reasonableness and the attachments to that and also the technical support document and attachments to the
technical support document.

So, today what I'll be covering is why the Pollution Control Agency is proposing these revisions to existing water quality standards, a little bit of background about water quality standards in general and this particular proposal, and then an overview of the proposal and implications of the proposal and a brief summary.

So, this rulemaking proposal came about as a result of questions arising about the existing standard for sulfates to protect wild rice production that is in water quality standards right now. And the questions, which I'll talk about in a moment, really pointed to the need for better understanding and clarity of both how and when sulfate impacts wild rice and also where and how the standard itself applies.

So, in 2010 the Pollution Control Agency started a review of the existing water quality standard and that's proceeded to get us to this point. And throughout this effort the Pollution Control Agency has been lead by key goals.

First; to protect wild rice production, that is the intent of the original standard and also the revisions going forward; to incorporate new
scientific findings, and I'll speak about that and how that relates to the proposal; to reduce the uncertainty and add clarity to the implementation of the standard, which has been a real challenge over the last decade; and also, to avoid unnecessary regulatory impacts where it's not needed to protect wild rice and wild rice production.

So, before I outline the elements of this proposal, it's helpful to talk a little bit about the nature of water quality standards themselves.

So, water quality standards are essentially a number or a statement to protect a water body for a specific use.

They're tools under the Federal Clean Water Act that are focused on protecting water quality and the type of water quality that's needed for what's called the beneficial use or the intent for the water that's being protected.

So, in this case, we're talking about a water quality standard that is intended to protect aspects of wild rice production or more specifically, harvest and use of the wild rice grain by humans and wildlife.

A water quality standard applies in the water body itself. So, again, it's intended to
describe the conditions, whether it's that narrative statement or specific number that is protective of that beneficial use in the water body.

Under the Federal Clean Water Act water quality standards are established by states and authorized Indian tribes. And they're established with the oversight of the federal government in the form of the Pollution Control Agency.

And basically standards are based on the environmental science that we have today about the effects of pollutants on human health and also on aspects of the environment.

So, now to the existing wild rice sulfate standard. The Pollution Control Agency first adopted a standard to protect wild rice from sulfate impacts back in 1973 following the administrative process at the time. And that standard was approved by the Federal Environmental Protection Agency.

That adoption process was based on data that was collected in Minnesota lakes that found that wild rice tended to grow in areas with lower sulfate concentrations.

What you see on the screen is a map of Minnesota with different colors representing different sulfate concentrations in the surface water,
blue being the lowest and red being the highest. And the dots are locations of waters with wild rice in Minnesota.

So, you can see that relationship between lower sulfate levels and the presence of wild rice. And that led to the adoption of the noted standard back in 1973.

But in recent years questions have come up about the standard, questions like while there is this tendency for wild rice to grow in waters with lower sulfate levels, we know that there are some stands of wild rice that grow at higher sulfate concentrations, much above the existing 10 milligrams per liter standard.

There's also been questions about where exactly are the water bodies that have this beneficial use of harvest and use of the grain by humans and wildlife.

And you'll notice in the previous slide that an aspect of the current standard refers to the susceptibility of wild rice to sulfate impacts. And there's been questions about when exactly is wild rice susceptible to impact from sulfate.

So, I mentioned the Pollution Control Agency first reviewed the scientific literature in 2010
to see if there was new information available to help clarify these questions that had come up. And there really wasn't new information about wild rice and sulfate in the scientific literature.

Fortunately in 2011 the Minnesota legislature provided funding to the agency under the Clean Water Land and Legacy Amendment from the Clean Water Fund to undertake studies to better understand the effects of sulfate and other pollutants on wild rice.

The legislature also directed the agency to convene an advisory committee to provide feedback on the study, the analysis of the study results, and also the subsequent rulemaking.

And then, the legislature directed the agency to undertake rulemaking following the completion of this study. And subsequent legislation has established a deadline for that rulemaking of January 15th of 2019.

So, this set PCA on a process of gathering new information and reviewing existing information and analyzing that information to move towards the rule that you see -- the rule proposal that you see before you today.

And you can see kind of the various steps that have occurred through the last seven years of
this effort. This slide now provides a bit of information about the activities that have led up to this rule proposal that is before the administrative law judge today.

So, first the agency undertook a series of studies to enhance understanding of the effects of sulfate and other substances on wild rice to inform the evaluation of the existing 10 milligrams per liter sulfate standard.

Those studies involved several areas of investigation. One was laboratory experiments, or otherwise known as hydroponic experiments, where wild rice seedlings were exposed to different sulfate and sulfide levels in the laboratory to see what effects those different concentrations did or didn't have on the wild rice seedlings.

There were also outdoor container experiments where wild rice was grown in large tubs out in the environment but not in a lake or a stream and subjected to different levels of sulfate concentrations. And variables were measured, including variables that related to the health of wild rice.

There was an extensive field survey where a number of lakes and streams across Minnesota were measured for a lot of different constituents,
chemical and physical, as well as the presence and
density of wild rice to see what relationships occurred
out in the environment.

And then, finally, there was a series
of sediment experiments that looked at the changes in
sediment from sulfate being introduced in the overlying
water and then being removed from the overlying water.

Throughout this effort we received
input and feedback from an advisory committee that
included a broad range of interested parties, including
tribes, environmental groups, municipality
representatives, industry representatives, and also
researchers in areas that had to do with wild rice
ecology and chemistry.

This was not intended to be a
consensus group, we knew that there was a broad facet of
information and feedback and perspectives and we wanted
to be sure that all of those perspectives were heard and
that input was provided throughout that process.

The effort also involved independent
scientific peer review where the agency worked with a
third party to have the initial analysis that was
completed peer reviewed by scientists actually across
the nation and internationally, a panel of five
scientists.
There was literature review, there was additional data that was collected by other entities that the agency also evaluated and incorporated into our analysis and ultimate proposal for the rule revisions.

And then, as Ed has noted, there's been a number of scientific articles that either have been published or now accepted for publication and in press. So, another round of independent peer review through that publication process.

Now I'll move on to the rule proposal itself. The proposal actually has four main components. The first is that it sets a protective level of sulfide. And the next slide I'll speak to why that's important when we're talking about sulfate in wild rice to be talking about sulfide.

Then the rule specifies how to determine then a numeric sulfate standard based on that protective sulfide level.

Thirdly, the rule identifies about 1,300 lakes, rivers, and streams as wild rice waters where that beneficial use either is currently an existing use or has been a use in existence since 1975. And that date is of significance because of the Clean Water Act and the provisions in the Clean Water Act.

And fourthly, the rule proposal
provides specific implementation details about data and how to consider data when the agency moves from the rule development process and adopting the standard to evaluating permits in the future to see if changes are needed to those permits to ensure that the standard is being protected in receiving waters of discharge.

So, that first part, then, is about the protective sulfide level that is protective of wild rice. So, what we found through the research and through the literature review and the ongoing review is that when oxygen is low in a mucky environment, which are the types of sediments where wild rice grows, what happens is that the bacteria that lives in those sediments, because there's not oxygen to breathe, they essentially breathe other chemicals.

And one of the chemicals that they breathe is sulfate. And in that process they take the sulfate and basically convert it into sulfide. And sulfide in that sediment water, which is also known as porewater, is significantly controlling of both wild rice presence and also wild rice density.

And actually while sulfate as a chemical is not all that toxic, and we've seen that both through the laboratory experiments and also just our understanding of environmental chemistry, sulfide
actually is highly toxic to humans, to wildlife, and in this case it also affects wild rice.

And the technical support document and the Statement of Need and Reasonableness lays out the details of those interactions.

So, then we needed to determine what is a protective level of sulfide if we're going to be protective of wild rice. And what we found is through analysis of primarily the field data, so the data that was collected in Minnesota lakes and streams, we identified what that protective level of sulfide is.

And that's what we're proposing as a part of this rulemaking is to establish the protective sulfide level as 120 micrograms per liter, which is the same thing as parts per billion, in the sediment of the wild rice waters.

So, once we've established what the protective level of sulfide is we do still need to understand, then, what is controlling that level of sulfide in the sediment so that we can take the next step needed to be protective of the wild rice.

And what we found through the additional analysis was that there were three variables that exert basically equal control on the presence of sulfide in wild rice sediments.
Those variables are the sulfate in the surface water, that makes sense because that's where the sulfur molecule comes from. The sulfate actually diffuses or moves into the sediment and then it's available there for that bacteria to do the work of moving it from sulfate into sulfide.

The other two variables are a little less direct, and so take a little bit more explaining. Because the other two variables that are equally important in controlling the sulfide levels in the sediment are the amount of total reactive iron in the sediment or total extractable iron and then also total organic carbon that are in the sediment.

And what's happening there is that the organic carbon is the food source for the bacteria. So, the more organic carbon you have in the sediment, the more bacteria you can have, the more quickly the bacteria can do their work of converting sulfate into sulfide.

So, sediments with higher carbon levels tend to be more efficient. Water bodies with higher carbon levels in the sediment are more efficient at converting sulfate into sulfide. Same amount of sulfate, you end up with more sulfide in a water body with less carbon levels in the sediment.
On the flip side, iron has the opposite effect of actually tying up the sulfide when it's produced. So, the sulfide builds up at a lesser extent. So, flip side, more iron means less sulfide building up in the sediment for the same amount of sulfate in the overlying water.

So, that led us to the proposal then of setting the sulfate number, the numeric sulfate standard for each wild rice water at the level that's needed to keep the sulfide below 120 micrograms per liter, that protective level.

So, the proposal includes a primary option for doing that, which is by measuring the concentrations of iron and sediment -- or iron and carbon in the sediment and then using an equation to determine what is the level of sulfate that is protective.

And the technical support document and the SONAR lay out how that equation was developed using data from Minnesota lakes and streams. And then, there's an alternate method of directly measuring the sulfide concentration as an alternate way of establishing what the safe sulfate level is.

Now, the reason for taking this equation approach is because there's not a general
pattern in the levels of iron and carbon in the sediment of lakes and streams that have wild rice in them.

Often what we'll find in environmental science is that there's patterns in our lakes and streams either by types, the lakes tend to behave in one way and streams tend to behave in a similar way to other streams or there may be regional patterns.

So, waters in the Northeast part of the state are somewhat similar in their composition, but different from waters in the Southwest.

What we found, though, when we look at iron and carbon concentrations in the sediment is that there's not general patterns in the environment that we can identify based on, for example, the type of water body, a lake or a stream or the location of the water body in the state.

So, two lakes right next to each other can have very different iron and carbon levels. So, we can't make general assumptions about those levels in the sediment, that's why we need to measure them.

Fortunately, we have been able to develop and propose a robust equation for relating the sulfate, the sulfide, the iron, and the carbon together so that we can then determine what is that numeric
sulfate standard needed to protect wild rice in a particular water body.

The proposal also includes some additional details for the numeric standard. First it incorporates by reference the procedures for the sediment and the porewater sampling that are necessary to measure the iron and the carbon to make use of that, either the equation approach or the alternate approach of directly measuring sulfide.

It's important that everyone is aware of what those procedures are and how they'll be followed so that folks can check the Pollution Control Agency's work or if there's interest in conducting additional work, there's a road map for doing that.

So, those procedures are incorporated by reference into the rule as part of the proposal so they become the same as the rule language in effect.

The proposal also specifies three important components of any standard, in this case the proposed wild rice sulfate standard. First, the magnitude, so the amount of the pollutant that can be in the water and still be protective of the beneficial use, that's the numeric sulfate standard.

Then the duration, the duration is the time period over which you evaluate the pollutant
concentrations. And it's related to how the pollutant actually affects the thing that you're trying to protect.

And the Pollution Control Agency is proposing an annual average as the duration for the proposed revised standard.

Then the third component of water quality standards is frequency. And what frequency has to do with is how often the standard can be exceeded and still be protective of what it is you're trying to protect, in this case, the wild rice harvest and use of the grain.

And the Pollution Control Agency is proposing a one-in-ten year frequency. What that means is that if one time in a given ten-year period the sulfate concentration on an annual average is above the numeric standard, that's not a violation of the standard because there needs to be a sustained elevation in order for the wild rice to be impacted.

And the details of that again are laid out in the Statement of Need and Reasonableness and the technical support document.

Then, the third critical or main component of this rule proposal is to specifically identify the waters that exhibit the beneficial use.
And we're proposing to term those as wild rice waters instead of the current phrase, which is water use for production of wild rice.

The Pollution Control Agency is not proposing to change that beneficial use, but rather to update the language and then also to specifically identify which water bodies exhibit that beneficial use to really add clarity to the implementation of the rule and to where the standard applies.

So, there's actually a series of lists in the proposed rule language, if you look at the proposed rule itself, that identifies where that beneficial use exists by the overall major basin and also by the watershed.

And then, the Pollution Control Agency has also developed an interactive map on our web page. That would not be the controlling rule language, it would all be in the proposed rule.

But to assist with user friendliness and usability we've also developed a web application map that you can look at to explore the proposed list of wild rice waters.

The other thing that we needed to think about in this process is that because there's not a comprehensive inventory of wild rice throughout
Minnesota, we needed to think about what would happen in the future if and when additional information becomes available about the location of wild rice in waters in Minnesota.

So, to address that, the Pollution Control Agency is proposing that waters be added as Class 4D wild rice waters through the rulemaking process and that beneficial use and the existing of that beneficial use and the reasonableness of that determination would be demonstrated then during that rulemaking process.

We've proposed language to include in the rule about the types of information that would be supportive of adding additional waters.

And we also anticipate and intend to regularly solicit that information so that as information becomes available there's the opportunity to move forward with rulemaking to augment that list of wild rice waters.

Finally, the rule proposal and supporting documents include information about implementing the rule. And what I mean by that is how the standard is considered, particularly in setting permitting requirements.

So, under the Clean Water Act and
state statutes, the Pollution Control Agency has the authority to implement federal national pollutant discharge elimination systems permits in Minnesota.

And the one thing that I want to point out is that permit setting process is not the same thing as establishing a water quality standard.

Basically the water quantity standard identifies what's the goal that we're trying to achieve and that we need to achieve in a water body to be protective of the beneficial use.

And that water quality standard is established based on what is it that environmental research and science tells us is needed to protect the beneficial use, in this case, wild rice production, from the pollutant of concern, in this case, sulfate.

What permits do is they then specify the facility requirements that are needed in order to ensure that a particular discharger is not causing or potentially causing that water quality standard to be violated or not achieved in the receiving water that that discharger is discharging to.

It's important to note, then, that not all facilities -- even if they discharge to a receiving water that we're protecting for a particular beneficial use, not all facilities have the potential to
impact that beneficial use.

They may have low amounts of discharge, both the volume of the discharge or how much of the pollutant is in the discharge. And if there's a large volume in the receiving water, then that particular discharger may not have the potential to cause or contribute to a problem. Some do have the potential to cause or contribute to a problem and that's when permit limits are needed in their permit in order to be protective of that beneficial use.

But one of the things that is -- that can be the case when we're talking about water quality standards and certainly has been the topic of much discussion around this particular rule proposal is that often our understanding of environmental needs and environmental protection needs can outpace our understanding or the ability to treat for pollutants that we find in discharges, whether it's discharges from industries or waste water treatment facilities or other types of activities in Minnesota.

In water quality standards development under the Clean Water Act we're actually not able to consider costs of treatment in establishing the standard because the standard is all about what is
needed to be protective of that beneficial use.

And that's really something that's independent of cost, whether it's really expensive to treat or it's really inexpensive to treat, that doesn't change how toxic a particular pollutant is to a particular receiving water to the things that we're trying to protect.

But costs absolutely are an important consideration when we're thinking about the overall system of protecting our resources in Minnesota. And it's at the permitting phase when costs come into consideration.

So, there's tools under the Clean Water Act and under state statutes and rules that allow for the consideration of costs when permits are being established.

And if establishing a permit limit based on protecting a water quality standard would result in widespread social or economic impact, there is the potential then to issue what's called a variance, which is a temporary change to the water quality standard, recognizing that technical infeasibility or cost infeasibility.

Now, variances do require review by both the Pollution Control Agency and the Federal
Environmental Protection Agency. And they do need to be re-evaluated over time to see if changes have occurred either in the economic feasibility or more often what we see is that treatment technology advances and what was once very expensive to treat for becomes more affordable and then the variance is no longer needed and that pollutant can be addressed.

So, I explain all of this because there are some provisions within the proposal that speak to some of these implementation questions that come up once a standard is adopted and then we're evaluating permits.

So, the proposal includes some details on what's called effluent limit review, which is the process of reviewing what's being discharged from a treatment facility to see if controls are needed in order to protect that water quality standard downstream.

And that is looking at both the appropriate flow conditions to review and also the approach for water bodies that are large or long that have wild rice in some parts of them but not other parts of them. And that's detailed again in the Statement of Need and Reasonableness and the technical support document.

There's also additional details
provided on variances, including a proposal to waive the application fee for municipal waste water treatment facilities or publicly owned treatment works that need to apply for a variance given the high cost of sulfate treatment at the current time.

The other thing that I want to point out is that data will need to be gathered to fully implement the water quality standard and evaluate the need for any changes to permitted facility discharges.

So, that data gathering will be prioritized based on the potential for impacts of facilities on downstream wild rice waters and also logistics like our monitoring schedule.

We have a ten-year rotating basin monitoring schedule that we follow, and also when permits will be coming up for reissuance. Permits are issued and re-issued on a five-year schedule.

So, finally, I'd like to point out that there's a lot of supporting information that provides context and details for the proposed standards revision. That includes the Statement of Need and Reasonableness, the technical support document, the peer-reviewed scientific papers.

There's also a regulatory analysis, which is a required component of the Statement of Need.
and Reasonableness under the Administrative Procedures Act. That identifies who bears the cost and who will benefit from the proposed rule revisions.

There's an alternative analysis of other options that the agency considered. It's important to point out that there is an existing standard, so that was part of both the alternatives analysis and also the overall regulatory analysis.

There's the cost and consequences of adopting and not adopting the revisions and options for mitigating those costs. And those are all part of that supporting information. And certainly we welcome feedback and questions about that information.

And then, I want to point out, too, that there is a separate but related project that the agency has underway that's been funded by the Legislative Citizen Commission on Minnesota resources that's focused on gathering additional information about treatment technologies and costs and options for municipal treatment works.

So, publicly owned treatment facilities that may be looking at the potential for limits on sulfate. So, that will help both inform what technology is available, if there's the need for variances it will help inform the variance proceeding as
well, that's separate from this particular rulemaking.

The SONAR regulatory analysis does also address costs and has pulled from some of the preliminary information that's from that study that is underway.

So, in summary, I'd just like to point out that something that is universally acknowledged, and I know that the folks that are interested and engaged in this effort very much appreciate, is that wild rice is important ecologically, economically, and spiritually in Minnesota. It's our state grain.

And we have very sensitive tribal communities that I -- as a nontribal person I know I can't fully appreciate how important this resource is to them but we've heard very much from their voices and this proposal has benefited from that perspective and the perspective of all Minnesotans that are interested in this particular issue.

We know that the sulfate standard that was adopted back in 1973 needs updating to reflect new science and enhance the clarity. There's a lot of questions about how to implement that existing standard. And there's new information that can really help clarify that.
We also know that there are environmental variables that affect the readiness or the amount that sulfate impacts wild rice from one water body to the next.

And this proposal accounts for those environmental variables by tailoring the standard to the environmental conditions by measuring the iron or the carbon or the porewater sulfide directly.

And that's particularly important given the significance of this resource and also the current cost of sulfate treatments.

We want to be as precise and accurate as possible given the challenging situation that's both the need to protect wild rice and the importance of protecting wild rice and the cost that sulfate treatment presents.

And finally, I just want to reiterate and emphasize that the Pollution Control Agency is very grateful to all of those who have shared their expertise, their critique, their hard questions, their perspectives throughout this process and throughout the administrative hearings now going forward.

And with that, Your Honor, thank you very much for the opportunity to present.

THE JUDGE: Thank you. It is just
about 11:15 right now and I have promised a brief break to our court reporter. So, we're going to take a ten-minute break.

In the mean time I will take a look at the sign-up sheets for people who want to make comments. And I will, in fact, during the break I'll make a brief announcement about who the first couple of people are.

You probably know who you are, but I will certainly make an announcement so you know you're going to be coming up for comments. So, it's 11:14, so we'll be back at 11:24. Thank you.

(At this time a brief recess was taken from 11:14 a.m until 11:24 a.m)

THE JUDGE: Please be seated. Okay.

So, we are at the public comment part of this public hearing. And I have the sign-in register with me. There was one person who does have a time constraint, so she's going to testify first.

And I'm not sure you were here for my comments at the very beginning, but there is a five-minute time limit. I will be keeping track and I offered people if they prefer to use that hourglass, it is a five-minute hourglass. So, if that makes it easier for you feel free to use it.
So, please, introduce yourself, please state your name, spelling your name. Let us know at least your -- what town you're from. If you're not comfortable giving your full address you don't have to do that publicly here, but where you're from.

And if you represent any groups please let us know who you represent. You may proceed.

MS. LANG: Hi, my name is Jennifer Lang, that is J-e-n-n-i-f-e-r, last name Lang, L-a-n-g. And I am a St. Paul resident. I am not representing any organizations today.

We gather in this room today because a common, seemingly mundane concern has brought us together. Wild rice is a culinary specialty and piece of Minnesota state heritage that has been important for me for some time.

I grew up in Minnesota and lived here my whole life before leaving for college in Ohio, followed by international teaching and work abroad.

My first real opportunity to share wild rice, this piece of my Minnesota cultural heritage, with an outside audience occurred about ten years ago. I was a junior in college preparing for my first long-term study abroad adventure.
I would be staying with a host family in Marseille, France. I remember tucking a small paper parcel in my luggage. The parcel was filled with Minnesota wild rice that my mother had picked up. A label was stuck to the parcel identifying its Minnesota origins and posting a recipe for wild rice casserole.

I remember preparing this casserole for my host family in Marseille and I recall their delight at tasting this nutty rich grain that they had never before encountered and that I'm proud to call our state grain.

It is a grain that stems back to our indigenous roots as a state, a grain that our native people grew to sustain their populations and a grain that continues to sustain us today.

But the meaning of wild rice for me is not just about Minnesota cultural preservation identity or even a source of food. Wild rice for me is also about honoring Minnesota's geological roots.

10,000 years ago the glaciers moved through the land we stand upon today, carving out the valleys and peaks and forming the lakes that have come to define our state today, land of 10,000 lakes, and even closer to 12,000, according to many sources.

And it's within and around these
Lakes and these beautiful clear waters carved out by the glaciers that our wild rice grows. Lately I have noticed lakes becoming blighted with the appearance of algae.

Algae growth is concerning to me because I want our lakes to be beautiful, both for my own recreational activities and for outsiders visiting our state, this land of 10,000 lakes.

Most concerning, though, is where this algae has come from. Algae blooms result from a release of phosphorus from sediments. Phosphorus release from sediments is something that can occur as a result of sulfate loading.

So, when we are proposing to increase the sulfate limit, this to me is a sign of blatant disregard and unwillingness to look at the source of an ongoing problem that is, the excess growth of algae upon our otherwise clear waters.

It is a sign of disrespect for our lakes, for our very geological roots, and for our recreational and tourist industry that sustains us today.

But the problem goes even deeper. The fact that the MPCA is considering abandoning the Clean Water Act and upholding the wild rice sulfate
standard is to me evidence of a blatant disregard for
the health and well-being of our future generations.

Currently one in ten infants in the
Minnesota Lake Superior region are born with unsafe
mercury levels. Mercury contamination in human fetus
can lead to all sorts of complications, including an
impact on brain development and neurological
functioning.

What astounds me is how closely
linked mercury contamination is with sulfates. It has
been proven that sulfate increases mercury in sediments,
resulting in bioaccumulation and toxic contamination to
fish.

If already 10 percent of infants in
this region are being born with unsafe mercury levels, I
can only imagine that this number would increase if we
were to neglect the sulfate standard. This strikes me
as extraordinarily unfair to the people and unborn
children of that region.

Finally, and perhaps most pertinent,
is that the MPCA is at risk of breaking the law. Eight
years ago in 2009 the MPCA got an order from the U.S.
EPA stating that we must enforce the 1973 wild rice
sulfate rule.

Currently as of 2015 the EPA is
actively investigating Minnesota because of our failure to protect clean water.

For these reasons stated, I implore the MPCA to uphold the Clean Water Act, keeping Minnesota's wild rice sulfate standard and to apply the existing wild rice sulfate standard all year around and protect all wild rice waters. Thank you.

THE JUDGE: Thank you. The next person on the list is Mr. Kwilas.

MR. KWILAS: Good morning everyone. My name is Tony Kwilas, K-w-i-l-a-s. I'm the director of environmental policy at the Minnesota Chamber of Commerce, which is located at 400 Robert Street North, Suite 1500, St. Paul, Minnesota 55101.

I want to thank you for the ability today to make some brief comments about the proposed wild rice sulfide standard. The Chamber represents 2,300 businesses statewide that employ over 500,000 Minnesotans.

The proposed rule right now would replace the existing 10 milligrams per sulfate standard, which we want to thank the agency for taking a look at and agreeing that that is probably not the standard we need to look at for wild rice and with an equation that would take into account total extractable iron and total
organic carbon in the sediment where wild rice is present or has been present.

This new limit on sulfide, not sulfate, would be proposed, as Ms. Lotthammer has mentioned, at 120 micrograms per liter.

The Chamber has some concerns about the proposed rule and they are threefold. The first one would be to the previously referred equation, which uses iron and organic compound components contains an error rate of 20 percent.

With such a high error rate, it's difficult for industry to justify the capital resources needed to be spent to meet this standard.

Uncertainty is one of the reasons cited by industry, along with the time to obtain the permit and the cost to get a permit which deters economic development projects and expansions from occurring in Minnesota.

By adjusting these inputs used, alternative or technically sound equations with reduced error rates could be generated and still protect wild rice. And this will also address the uncertainty in the equation.

There's going to be commenters behind me, including Mr. Anderson and a panel of experts, who
will be able to elaborate a little bit further on this point.

The second point is, the Pollution Control Agency did not include conclusions from an economic impact study that was requested by the legislature in 2016.

That request for proposal included engineering feasibility studies and a cost analysis of the potential impacts of the rule.

The legislature even extended the deadline during this last legislative session for the rulemaking until January of 2019 so this report could be incorporated in the supporting documents. The report, as mentioned by Ms. Lotthammer, is going to be due in June of 2018.

Now, the technical support documents and the Statement of Need and Reasonableness both have economic and social economic impacts, but they do not include the factors that would be assembled in a complete cost analysis of this rule.

The PCA has estimated that at a minimum 130 permitted facilities will be impacted by this new rule. It's very difficult for these impacted facilities to plan and invest in future economic plans and capital investment without a complete final cost
analysis of how much this rule will cost.

And finally, Judge, the federal regulations that guide implementation of the Clean Water Act allows states to adopt variance provisions.

These provisions allow granting a variance to a permit applicant if a permit applicant is able to demonstrate and document, despite fully realizing all treatment capabilities available.

And as required by law the permit applicant still cannot control a specific pollutant in its discharge to the extent necessary to meet the applicable water quality standard.

The PCA has testified today, as well in their slide presentation, as well as before a legislative hearing, that they anticipate numerous applications for variances and subsequently will waive the application fee for municipal applicants, but not for industrial applicants. We believe that this is unfair and should be addressed by the Pollution Control Agency.

I also wanted to point out very briefly that variances tend to be very expensive and come with a schedule of compliance and are only temporary. And right now I've been told, I think, there's only five, I think, in the state that have been
granted.

So, with that, I just wanted to thank you for your time today and we will be submitting written comments also on the November 22nd deadline.

THE JUDGE: By the end of the day --

MR. KWILAS: By 4:30. Thank you.

THE JUDGE: Thank you. Okay.

Mr. Anderson?

MR. ANDERSON: Your Honor, as Mr. Kwilas mentioned, we do have a panel of experts that --

THE JUDGE: So, you're part of that panel?

MR. ANDERSON: Yes. We're signed up in order.

THE JUDGE: Okay. Would you like to all come up here together then?

MR. ANDERSON: Yes, if we could, Your Honor. And perhaps while they're coming up I could kind of explain the basis of the group.

THE JUDGE: Why don't you all come up first, introduce yourselves and then we'll know who we've got. How many of you are there?

MR. ANDERSON: There's four, including myself, Your Honor.
THE JUDGE: Okay. Can you just give me the other three names so I know who I've got?

MR. ANDERSON: It's Robin Richards, Mike Bock, and Mike Hansel.

THE JUDGE: You've got enough room there? Okay. You signed up next to each other, so that makes it easy for me. Okay. So, Mr. Anderson, I'm not going to put you on the clock quite yet. Do you want to introduce the panel?

MR. ANDERSON: I will. So, Your Honor, the representatives you have up here today represent members of the regulated community, including some of our largest industrial dischargers that would be potentially impacted by this regulation. So, we are sort of an ad hoc committee of technical and regulatory experts.

THE JUDGE: Okay. And you'll introduce yourselves individually as you speak?

MR. ANDERSON: Yes.

THE JUDGE: Okay. You're going to start, Mr. Anderson?

MR. ANDERSON: I will.


MR. ANDERSON: My name is Kurt Anderson, that's K-u-r-t, A-n-d-e-r-s-o-n. I'm the
director of Environmental and Land Management for Minnesota Power. I'm responsible for the environmental compliance and permitting across all Minnesota Power operations.

Prior to coming to Minnesota Power I was an aquatic toxicologist, a seedling biologist, and a laboratory director at ASCI Corporation where I oversaw hundreds of sediment and effluent and chemical testing for a variety of organisms, including wild rice.

More recently I've been an active member in the MPCA's wild rice advisory committee. I have been co-authored on two published papers looking at the impacts of both sulfate and sulfide among rice. And in 2016 they appointed me to the eight-member panel for the Minnesota Pollution Control Advisory Committee.

Your Honor, this is a complex ruling with a lot of moving parts. And there's a few things, which I won't get into great testimony, that I want you to keep in mind.

My comments are really focused on the third element, the need and reasonableness of this rulemaking. And I want to commend the agency for where they started out, looking at the existing 10 part per million standard.

They did an excellent job looking at
modern research, which showed that wild rice was growing in the natural environmental at levels far above 10 parts per million, up to 80 times higher.

Natural stands of wild rice in the laboratory, sulfate wasn't affecting wild rice seedlings until 160 to 250 times higher than the existing 10 part per million standard.

So, they made excellent progress on that part. And they made the decision to not move forward with the existing 10 part per million standard based on those multiple lines of evidence. And that was excellent work.

And they could have stopped there, they chose not to. Instead, they had the hypothesis that it wasn't sulfate in water column affecting wild rice, but sulfide in the sediment, as Ms. Lotthammer referenced early.

And that may be problematic from a regulatory standpoint, but from a scientific standpoint that's still sound and still tracking with that.

But as the MPCA began to test that hypothesis, that's where, I think, the approach really starts to unravel. And here are the major issues that I see with the proposed approach.

And it's all centered around the 120
parts per billion protective value, which put another way means that it's unsafe for wild rice to have sulfide conditions greater than 120 parts per billion.

When the MPCA first started testing this in the laboratory, they saw no effects until levels were over 3,000 parts per billion. So, almost 30 times higher than what they're saying is unsafe.

They then chose to test the whole plant, not just the rooting zone. And their theory was that sulfide was impacting in the rooting zone. They tested the whole plant --

THE JUDGE: I'm sorry, in the?

MR. ANDERSON: Hydroponic study.

THE JUDGE: Okay.

MR. ANDERSON: And the impacts that they saw was only to the green parts of the plant, which aren't in the rooting zone, and do not have the likelihood that sulfide is actually present because of the oxygen in the water.

And the peer reviewers saw that, they recommended changes. The MPCA chose not to implement those changes. Independent peer-reviewed published research did separate those.

And again, there were no impact unless levels were at least 12 and up to 30 times
higher. So, it took that much more sulfide to cause an impact. So, this is on Page 70 of the SONAR as one line of evidence.

The other major line of evidence is the field research. And the major issues that I see there -- as a toxicologist, when you establish a safe level usually you don't see whatever organism you're looking at healthy and thriving in higher levels than that safe level.

And I think this stand of natural wild rice in the state of Minnesota had levels ten times higher than what the MPCA is proposing is unsafe, that's Lake Monongalia.

And it's not the only one, there's numerous other water bodies out there that have levels of sulfide in the porewater well above the 120 part per billion protective level that have thick wild rice.

And that does not even include the paddy rice, which is excluded from the MPCA's analysis. And that also -- most of those sites have levels of sulfide well above what the MPCA has deemed as unsafe.

So, those are the two major issues. I have a third with the mesocosm data, which I don't think I'm going to get to today, but I can perhaps come up later. But those are the major issues.
And having that level set so low means that we may need to comply with a very expensive standard that has no guarantee for even a reasonable certainty that it's going to do anything to benefit wild rice.

THE JUDGE: Thank you. Who wants to go next? Ms. Richards?

MS. RICHARDS: Yes, my name is Robin Richards, R-o-b-i-n, R-i-c-h-a-r-d-s. I'm from Arlington, Virginia and I work for Ramboll Environ Corporation, R-a-m-b-o-l-l, and the second word is Environ, E-n-v-i-r-o-n.

I was a member of the wild rice technical advisory committee. I have worked on other states rulemaking committees in Indiana, Wisconsin, Ohio, and in Iowa.

I have 30 years experience working with water quality standards, development and processes. And by education I'm a biochemist plant physiologist.

And I'm testifying on water quality criteria development process. In Shannon's presentation she referenced why are water quality criteria developed, what is the use of a water quality standard.

And I'd like to address a bit what was left out on the SONAR in Section 4A, Page 26 to 28.
Water quality criteria are intended to prevent the occurrence of toxic pollutants in toxic amounts and protect the beneficial use of the water.

In looking at how to assure that toxic pollutants are not present in toxic amounts so that it would cause adverse or chronic -- acute or chronic adverse effects on aquatic life or human health or even wild rice, one goes about developing what's called a dose response curve, a way to analyze a direct cause and effect relationship.

And in doing this in the water quality criteria development process, there's clear definitions of what is a toxic amount and what is the adverse impact needed to be avoided, once again to make sure you protect the beneficial use of the water.

The EPA in coming up with a process, as they were required to in the Clean Water Act, as they develop water quality criteria have a defined level of confidence in what is defined as a toxic amount to protect from this toxic response.

They also end up having a very concrete way of communicating this is a toxic pollutant, this is the adverse effect.

Consequently there's an anticipation that when you implement this water quality criteria, not
only will you protect the water body for its beneficial use, but that you will also anticipate if the water body is above that concentration, you go in and bring down to the level of concentration you've identified as safe, that you will see a response in the sense that the adverse impacts are gone away.

They started developing these procedures for toxic pollutants, defining the toxic amount of toxic pollutants in the 1990s, as far as releasing quite a few number of water quality criteria and really defining the process to develop them.

One of the things that we would have wanted to see from the MPCA process is a clearly defined dose response or clearly defined toxic amount and what the resulting adverse impact was and be able to have confidence in implementing that to ensure that not only were we protecting the beneficial use, but that also if the beneficial use was not present, that in lowering the level of the toxic pollutant you would see the beneficial use recovered.

Now, certainly science has progressed and there's some state-of-the-art examples that I would like to go over that EPA has put forward developing water quality criteria.

Some of these are -- the most current
one is the use of fish tissue. So, like wild rice, the water column itself is not causing the adverse effect to aquatic life. So, for selenium, EPA figured out a fish tissue level for selenium that if the fish tissue concentration was below that, the aquatic use was protected.

So, there is the ability to have a direct cause and effect that is not water column related. It is, in this case for selenium, related to fish tissue itself.

In establishing that threshold value for selenium just to give you an idea, it took 19 years of science. Because science was progressing, scientific methods, analytical methods, and statistical methods all progressed.

Because this was not a simple water column direct effect. We have fish tissue. So, the thoughtfulness that went into that, the allowance for the fact that science does not evolve quickly was part of the process for developing a fish tissue level to protect aquatic life.

Also, EPA recognizes --

THE JUDGE: So, you're just about at the end of your time. I want you to tell me what your final point here is.
MS. RICHARDS: Okay. My final point is that in looking at state-of-the-art methods, there's recognition that it's not always a water column concentration that can be directly related to adverse effect.

And that, it is perfectly fine within the EPA process of developing water quality criteria to have it based on something intermediate. And in the case of selenium it's fish tissue. And that is a water quality criteria.

In other words, it's reasonable not to then go ahead in regulation put how you're going to translate from a fish tissue to a water column because that's such a complex relationship.

THE JUDGE: Okay. Thank you. And I will invite each of you to provide me with written statements, if you like, when you're all four done. Thank you. Who's next?

MR. BOCK: My name is Mike Bock, B-o-c-k. I also work with Ramboll Environ. I'm in the Portland, Maine office. My background is in statistics and geochemistry.

I want to address two topics. First off, when we look at the field data that was used to arrive at the 120 milligrams per standard, looking at
whether that was reasonable and whether the analysis of
that data supports that standard.

The next thing that I will be
discussing is translating this sulfide threshold to --
sulfide threshold to the sulfate standard and whether
the equation or method that MPCA is using is reasonable
and effective.

And a lot of this derives from the
fact, as was mentioned earlier, that in many water
bodies we receive sulfide concentrations much above 120
micrograms per liter value that are healthy stands of
wild rice.

The big question is, why is that?

What does that mean with respect to the standard? One
of the lines of evidence that MPCA used, and they
document this on Page 69 of the SONAR, is looking at a
breakpoint in a visual plot of the health metric for
wild rice versus the sulfide in the sediment. And they
use a visual analysis.

However, there are statistical
methods that you can use to pick up breakpoints. For
example, piecewise fruition. I'll provide more
information on that in written testimony.

When you utilize piecewise fruition
we find that when we exclude bean, that's one of the
laces identified as potential outback, we come up with a breakpoint that's two to three times higher than the value that the PCA comes up with.

When you include bean, you come up with a value a thousand times higher. So, this suggests that the 120 micrograms per liter threshold isn't a reasonable value.

Another line of evidence that MPCA used is a change point analysis. And the methodology behind that is you order the water bodies from low sulfide concentration to high sulfide concentrations. And you see how metric of wild rice health changes as you go up in concentration.

The authors of the methods that one of the authors for calculating these change points caution that you need to test for the presence of multiple change points. So, test for the presence of multiple concentrations change in relationship between sulfide and wild rice.

And they call that a way of validating the change analysis. When you allow that analysis to include more change points, what we find is that there's nothing significant or unique about 120.

When you allow multiple change points you can see that the overall health metric balances up
and down as you go up in concentration. This means that that particular test fails the validation check.

Finally, utilize some minor statistics to test for the effects of sulfide on wild rice health. And this analysis is fairly complicated, so I will have to go into detail in written testimony.

The take-home message is that we find that thresholds two to three times higher than the MPCA's threshold are just as protective of wild rice health as the MPCA threshold.

Furthermore, we find that because of the relatively low number of water bodies with concentrations above the MPCA threshold, specifically about 300 or higher, it's very difficult to test the significance of higher thresholds.

And as I said earlier, the next thing that I looked at was the equation, whether the equation is reasonable or logical. When you look at the technical support document MPCA defines how that equation was derived on Pages 46 and 47.

We tested the equation using different sulfide thresholds. For example, we looked at sulfide thresholds between 120, MPCA value, up to around 300. What we found is that there's an illogical behavior in the equation.
Specifically, one would expect that as you increase the permissible sulfide value in the sediment that you'd also get an increase in the sulfate value. What we found is that for a large number of lakes, that's not what happens.

Sometimes when you increase the permissible sulfide value, you actually get a decrease in the sulfide value, which is counterintuitive. You would expect that as you allow higher concentrations of sulfide, you should also see a lot higher concentrations of sulfate.

For a large number of water bodies that isn't the case. It predicts a lower sulfate standard for higher sulfide thresholds. That's counterintuitive, illogical and clearly indicates this equation.

Because it was derived statistically and isn't a mechanistic equation, it doesn't describe the mechanism by which sulfate is translated into sulfide, that the equation isn't performing as it should and is not doing a good job predicting sulfate threshold based on permissible sulfide concentration.


MR. HANSEL: Your Honor, my name is
Mike Hansel, H-a-n-s-e-l. I'm a principle emeritus at Barr, B-a-r-r, Engineering in Minneapolis.

I have a bachelor and master's degree in chemical engineering. I've worked in the environmental engineering field for over 40 years and have over 40 years of experience in water quality standards.

I was an active observer in the PCA's advisory committee. I drafted most of the comments for the Minnesota Chamber during that process. I'm also a co-author with Kurt on two publications on the toxicity of sulfate and sulfide to wild rice.

I'm here to talk about three things this morning. And I also will be presenting written testimony. First, MPCA has not demonstrated the need for or the reasonableness for two provisions of the rule.

Those are proposed Minnesota Rules 7050.0224, Subpart 5A, Lines 7.17 to 7.21, the 120 micrograms per liter protective sulfide level. And 7050.0224, Subpart 5B1, Lines 7.25 to 8.17, the formula for calculating the protective sulfate level from sulfide.

The third issue is that the PCA has not adequately considered the cost of this proposed
regulation. Sulfate and sulfide are not toxic to wild rice. I think with respect to sulfate, that's certainly the case at all concentrations seen in Minnesota wild rice waters.

And the literature and the testing that the agency did and Fort Labs did confirmed this. Therefore, the agency was correct in striking the 10 milligram per liter sulfate standard in Line 7.8.

Sulfide, as Kurt testified, is also not toxic to the parts of the wild rice plant that grow in the sediment at concentrations seen in Minnesota wild rice waters. This is borne out both by Pastor's research and by Fort Lab research.

And as you've heard, the statistical methods that the agency used were not robust in this matter. As a result, there's large discrepancies between the data that the agency used.

The numbers that they came up with for protective sulfide from the field surveys are some ten times lower than the cause and effect research that was done by Dr. Pastor in Fort Labs.

Part of the reason for this is that in the field surveys there are other stressors on wild rice that will confound the impact of sulfide. PCA notes that several of these are statistically
significant, yet it chose to ignore the effect of those stressors and scribe all of the ill effects to sulfide.

Similarly, the mesocosm study done by Dr. Pastor there was clearly depletions of iron and perhaps nutrients in the experiment.

In the third year of the experiment most of the -- most the wild rice plants died, including those in the controls which were not exposed to sulfate or sulfide, raising serious questions about that study, which the peer review panel clearly raised.

So, the agency has these inconsistencies. The mesocosm also had a tenfold lower protective level based on the PCA's statistical analysis.

PCA's approach was to ignore all the confounding efforts or effects in the mesocosm field study and go ahead and use those while ignoring the controlled studies where only sulfide or sulfate was varied in the lab.

With regard to costs, the PCA admits that the cost to treat sulfate and sulfide to these levels is "prohibitively expensive," see Pages 107, 182, and 184 of the SONAR.

For cities the capital cost can range from ten to over 50 million dollars by the PCA's own
calculations. And at the December advisory committee meeting the agency admitted those factors, those costs may be low.

Unfortunately there's no evidence that reducing sulfate in the discharge will reduce sulfate in the water column, will reduce sulfide in the water pores or in the sediment or will protect wild rice. There's been absolutely no evidence for that.

Therefore, we suggest that you remand this rule back, particularly the two parts that I mentioned earlier. And two, require the agency to complete the cost analysis that was authorized by the LCCMR grant prior to completing this rulemaking. Thank you.

THE JUDGE: Thank you. Okay. And do you have written exhibits that you'd like to enter into the record at this time or are you going to --

MR. HANSEL: We're going to submit those separately.

THE JUDGE: Okay. That's fine. Thank you. Okay. Is there a Mr. Beranek, Rob Beranek? I'm sorry, I have -- there's one person whose name I have here who didn't come up with the panel I thought was. Mr. Beranek -- is there a Mr. Hansel, Mike Hansel?

MR. HANSEL: Yes, I was the last one.
THE JUDGE: You were the last one, I'm sorry. I think I missed writing your name down. Let me make sure I wrote your name down. I wrote your name down and then I forgot. Ms. Maccabee?

MS. MACCABEE: Is there an opportunity to ask qualifying questions of the panels?

THE JUDGE: Sure. I didn't ask if there were questions for the panel. Let me think -- actually, Mr. Beranek, would you mind taking a seat off to the side for a minute? Was there a particular person you wanted to ask a question of?

MS. MACCABEE: I had one question for Mr. Bock and one for Mr. Hansel.

THE JUDGE: Okay. Mr. Bock and Mr. Hansel, can you come back up, please? And if you wouldn't mind actually, Ms. Maccabee, also coming up to the table so you can be heard?

MS. MACCABEE: Your Honor, would this be appropriate?

THE JUDGE: Say something again.

MS. MACCABEE: Would this be appropriate?

THE JUDGE: Yes, that's being recorded on the system as well. Thank you.

MS. MACCABEE: Thank you very much,
Your Honor. Mr. Bock, one point you made is that you tested the equation using sulfide levels from 120 parts per billion to 300 and you found illogical behavior in the equation.

Did you change anything else in the equation other than that sulfide number? Did you change any other of the other factors as well?

MR. BOCK: When you look in the technical support document it describes how you calculate whether the water body exceeds the threshold or not.

So, that was the only thing that I did is recalculated the classification of each water body based on rather than using the 120 unit thresholds, all else was set the same.

MS. MACCABEE: Thank you very much. Mr. Hansel, when you were talking about Dr. Pastor's research finding sulfide toxicity at different levels than at the level the Pollution Control Agency landed on, the 120 parts per billion, you were talking exclusively about hydroponic experiments, correct?

MR. HANSEL: That's correct.

MS. MACCABEE: Thank you. No further questions.

THE JUDGE: Thank you. You're both
MR. BERANEK: My name is Rob, B-e-r-a-n-e-k. I represent Cleveland-Cliffs, I'm the manager of water planning and programming. Cliffs has a major presence on the Iron Range, Minnesota where our company operates United Taconite, Northshore Mining Company, and Hibbing Taconite. We're also one of the sponsors of the panel that was previously before you.

Together the three facilities that we manage can produce up to 19.5 million tons of iron pellets annually and they employ over 1,700 individuals, with a total economic impact to the region of nearly 900 million dollars.

My role with Cliffs, I'm responsible for regulatory planning, permitting, compliance for all matters related to the regulation water that goes through those facilities. For the last several years --

THE JUDGE: Mr. Beranek, if you could slow down a little bit and speak into the microphone a little bit. Thank you.

MR. BERANEK: For the last several years I've been deeply involved in working with the Minnesota Pollution Control Agency, other regulated
entities, water quality experts, and legal advisors to understand the science behind and regulatory implications of Minnesota sulfate wild rice standard. I sat on the Minnesota Wild Rice Project Committee as well.

My comments on the proposed amendments of this standard are nuanced. I support the proposed amendments in part and do not support others. I'll provide you an overview of my comments here and I'm also going to provide you with written comments by November 22nd at 4:30 p.m.

Based on my review of the supporting data, as well as the review of our experts, I support the conclusion that the removal of the 10 milligram per liter sulfate standard is reasonable.

To quote Page 35 of the SONAR, "Two important research efforts on the toxicity of the sulfate to wild rice," that's Pastor, et al, 2017, Exhibit 19, and Fort, et al, 2014, "has shown that sulfate is not directly toxic to wild rice at levels commonly found in wild rice waters of Minnesota."

Next, I do not find the proposal to establish a toxic sulfide threshold of 120 micrograms per liter reasonable. First, I have to reinforce the point that will be made by many during these hearings.
The toxic sulfide threshold is a billion dollar or more water treatment issue for the state of Minnesota. You will hear people say, and I agree and they are correct, that establishing water quality standards is nonaction of consideration of costs.

However, later in the development of this very unique water quality standard is a series of policy calls that need to be heavily scrutinized.

Each of these policy decisions will collectively determine if a billion or more dollars really does expand on water treatment and will have negligible impact on wild rice.

You're going to have your work cut out for you, wading through the PCA's supporting materials and considering the highly technical written comments we will be providing.

I'll take my time here to just say three things on that. First, one pillar of technical support for 120 micrograms per liter as a visible assessment of a graph of the portion of wild rice stands sulfide above and below the graph values. These are on Page 69 of the SONAR.

Using visible assessment of a graph for post-standard that could cost billions is simply
reckless. The agency did back it up with additional statistical review, but as Mike Bock just commented, we believe that that review is incomplete and we're going to supplement the record with Mike's review.

To summarize, we think the 120 micrograms per liter standard is unnecessarily low. And we'll provide comments to the end of -- if a value is needed at all.

Secondly, the field data set includes both proposed wild rice waters and non-wild rice waters in that set. The data from the non-wild rice waters must be excluded from development of an equation based standard.

The only support I could find for the agency's policy judgment to leave these waters in is a conjecture contained in a footnote on Page 68 of the SONAR, making this decision arbitrary and unreasonable.

My comments will further detail the impact of this common sense change if the agency chooses to go ahead with the equation based standard.

Thirdly, the technical review we submitted is going to detail very serious questions regarding the support for this triple standard that suggests no sulfate or sulfide standard is necessary.

If the PCA is successful, though, in
addressing all of these issues that we lay out, I want to make you aware that the first half of 2017 Robin Richards of Ramboll Environ, who was on the panel previous to my testimony, submitted recommendations on changes to both the protective toxic sulfite threshold as well as the field study waters that were included in developing the equation.

As mentioned, these changes will reduce the error rate of the current proposed equation from 20 percent down to 4 percent. For a billion dollar treatment issue we think reviewing this further is prudent.

Next, I find that the alternate standard and specific standard portions of the proposal are reasonable. Am I out of time?

THE JUDGE: You are.

MR. BERANEK: Excellent. I'll follow up with the rest of my testimony in writing.

THE JUDGE: Okay. Thank you. If we have time at the end and everyone has spoken you are welcome to come back. Thank you. Okay. Is it Lowell Carlon? Hold on just one minute.

MR. CARLON: You won't need that.


MR. CARLON: Good afternoon everyone.
My name is Lowell Carlon, L-o-w-e-l-l, C-a-r-l-o-n.

THE JUDGE: Thank you.

MR. CARLON: Okay. I am the president of the United Steel Workers Local 1938. I represent the 1,200 hard-working men and women at Minnesota Ore Minntac in Mount Iron, Minnesota.

Again, I'd like to thank you for having -- take the time to have these hearings here in St. Paul and also up in our back yard in Virginia tomorrow.

I'd like to call attention to the people behind me. We've got roughly a dozen people, union representatives representing about 2,500 hard-working union members on the Iron Range. Thank you.

THE JUDGE: Thank you. Okay. Is it Lou Foushe?

MS. FOUSHE: Lea.

THE JUDGE: Lea, I'm sorry. And, Ms. Foushe, we already have an exhibit from you, which we got before the hearing started this morning. And we have marked it as Hearing Exhibit -- I just started the hearing exhibits numbered 1000.

So, we're well out of the range of however we wind up numbering the agency exhibits. So,
your exhibit is numbered 1000.

MS. FOUSHE: Thank you, Your Honor.

I'm Lea Foushe, it's L-e-a, Foushe is F-o-u-s-h-e. I'm the environmental justice director for the North American Water Office in Lake Elmo, Minnesota, which I co-founded in 1982.

I'm an honors graduate from the University of Minnesota. I currently sit on the Minnesota Pollution Control Agency Commissioners Environmental Justice Advisory Group.

I've been engaged in defense of water all my adult life and professionally for more than 40 years. Traditional ecological knowledge of indigenous people can save the well-being of living creatures, human, animal or plant.

The mining industry cannot save the health of the people or of the creatures. The mining industry are extractors. Profit margins are reduced when the industry cannot direct discharge into our precious waterways.

It doesn't matter to them if the food that grows on the water, wild rice or manoomin, cannot survive the contamination. It doesn't matter to them if the fish in the water are contaminated with mercury from the sulfate contamination resulting from the discharge.
What matters to the mining industry is their bottom line, financial gains and their infrastructure that supports the extraction.

If the mining industry did full cost accounting of their extraction, i.e., clean up the discharge and not contaminate the water, then their blue-collar workers would indeed have legitimate employment.

Employment based on the permanent destruction of land and the pollution of water for over 150 years is for all purposes a one-time harvest. Environmental racism runs rampant in these circumstances.

The Anishinabe, Ojibway or Chippewa, whichever word you recognize, and their primary food source will be sacrificed in this extraction, just like the Buffalo slaughter in the Wild West days to subdue the Dakota, Lakota, and Nakota nations.

The existing standard of 10 milligrams per liter sulfate has never been enforced. I'll repeat myself, it has never been enforced. We're talking 44 years of violations. The State of Minnesota has been turning a blind eye for the mining industry.

So, why is there a big push to change it all now? The Minnesota Pollution Control Agency is
saying that 120 micrograms per liter sulfide is more protective than 10 milligrams per liter sulfate. Minnesota Ojibway and Dakota tribes don't agree. Environmental groups don't agree. The MPCA has said it will take more than ten years just for them to determine what limits on sulfate discharge would be for water bodies and that they would plan to give variances for exceedances and the long schedule to comply to industry.

This is just confusing for the common community person, but it seems that the main thing this rule would do is create a recipe for more and more delay in the actual limit of sulfate pollution.

What is said in the fine print is that the new proposed standard discharge is averaged over a year. And one exceedance can be allowed over ten years without killing the wild rice in question. There's no factual basis for this presumption, it's theory, it's the column of water in an experiment.

Under the proposed wild rice rule language permits the mining industry would along that company to collect and analyze sediment and water samples from the wild rice bodies their project would contaminate.

After years of participation in the
stakeholders meeting for the promulgation of this rule, I can testify that that was not the proposal discussed. I spoke directly to the MPCA water quality staff and asked who would be responsible for going lake to lake and collecting the samples. I was informed by the staff that staff would be doing that work, Phil Monson.

Funding for a lake-by-lake effort, it was obviously a question and identified as a real problem given cuts to funding by the federal government. We also had discussion about a neutral third party being more objective for this work.

The polluter pays was one solution mentioned, but not to do the material work. We know that sampling results depend on where and when and how the sediment samples are taken and that the samples for the MPCA’s proposed rules are much more complicated than sampling the amount of sulfate in the water.

Letting dischargers, I have to finish, do their own sampling puts another big loophole right in the middle of a proposed rule and creates a direct and obvious conflict of interest. You need to hear this.

THE JUDGE: Ms. Foushe, I know that you submitted something in writing --
MS. FOUSHE: They need to hear it.
Everyone in this room needs to hear it.

THE JUDGE: This will be posted and you are welcome to come back and finish, but I have to be fair to everybody here.

MS. FOUSHE: You're not fair.

THE JUDGE: Ms. Foushe, I set up a rule at the beginning and I have to apply it equally.

MS. FOUSHE: I understand. How long did the panel in front of me have?

THE JUDGE: They each had five minutes, they each had five minutes. And you've gone over six.

MS. FOUSHE: I thank you for your time.

THE JUDGE: Thank you. This was very helpful. And your comments will be posted and you're welcome to come back if you're here.

MS. FOUSHE: Okay.

THE JUDGE: So, I think we have time for one more person. George Crocker?

MS. FOUSHE: He's with me, he's not speaking.

THE JUDGE: Okay.

MS. FOUSHE: He can speak -- he can
read the rest of it.

THE JUDGE: He's welcome to do that, if you like.

MR. CROCKER: Good afternoon, Your Honor. My name is George Crocker, C-r-o-c-k-e-r. I'm the executive director of the North American Water Office.

THE JUDGE: Thank you, Mr. Crocker.

MR. CROCKER: Indigenous people contend with legitimate validity that the 1854 treaty guarantees their human right to the wild rice beds for cultural, spiritual, and physical livelihood, be it economic or nutritional.

This permanent rank of self-determination cannot be denied without causing the extermination of the Anishinabe people. Elders have voiced this reality in multiple forms that denial would be a genocidal decision. In short, war has been declared against indigenous people over the right to wild rice.

Any waterway that is known to have had wild rice be protected not just goes to waters identified in the rule, but Ojibway and Dakota tribes across Minnesota have spoken with one voice to attempt to an arbitrary limitation based on how lush the wild
rice may be at one time, often after years of pollution and harm.

The identified lakes were those that managed a specific number of stands in a specific area at a specific time of measurement. Wild rice may be absent for one year and bountiful the next in any given waterway that has ever had rice.

Under the proposed rule this variability has a potential of eliminating many water bodies that should be included.

Speaking for the North American Water Office and its interest of environmental justice and respect for tribal science, please reject the MPCA's proposed rule.

Preserve the existing limit on sulfate in wild rice waters and protect all of the wild rice waters already listed by the DNR, include any additional data on wild rice lakes and their existence provided by Minnesota's indigenous peoples.

It is time to respect indigenous science on an equal basis as lesbian science. Support tribal wisdom and make sure that the protection of sacred waters and the wild rice is based on sustaining the sacred resources of water and manoomin for generations to come.
And then you have the attachments. Exhibit 1 is a map that Lea requested from the MPCA, wild rice rule, our staff produced.

This map displays the wild rice lakes in question and the sulfate mining permits based on attachment to MPCA’s list of out-of-date mining permits, which we found in the process of researching comments in the northern map, PolyMet lime permit.

These maps illustrate the degree of destruction that the mining industry alone that will occur if the proposed rule is adopted. Such destruction is not acceptable amongst civilized people. Thank you.

THE JUDGE: Thank you, Mr. Crocker. Okay. It is just about 12:30. So, we’re going to take a break now of 30 minutes. Meet back here at just a couple minutes before 1:00 and we will continue. And the next person on my list is Paula Maccabee.

(At this time a lunch recess was taken from 12:30 p.m until 1:05 p.m)

THE JUDGE: Good afternoon everybody. I think we are ready to start with the afternoon’s comments. Is there anybody -- are there any questions or comments about anything so far before we proceed?

And, Ms. Maccabee, I think you’re next up. Anything? Okay. All right. So, Paula
MS. MACCABEE: Thank you, Your Honor. And please let me know, I've never done this with a computer, might have a technical glitch.

Your Honor, my name is Paula Maccabee, M-a-c-c-a-b-e-e. I graduated from law school in 1981 and have 36 years of experience in public interest law. I serve as advocacy director and counsel for Water Legacy, which is a nonprofit founded in 2009 to protect Minnesota water resources.

I live in St. Paul. Water Legacy is based in Duluth. Water Legacy objects to MPCA's proposal to replace Minnesota's wild rice sulfate standard with an equation and to restrict the wild rice waters protected from sulfate pollution.

Our written comments will detail these concerns. Today my focus is history and law. What does Minnesota's experience and the rule text tell us about proposed rules purpose and its probable result?

A mentor who served in the Minnesota legislature taught me not to complain that "govern wasn't doing its job." If year after year agency action
was leading to a certain result, no matter what the law
books might say, that result was the job that
politicians who directed in front of the agency wanted
them to do.

Minnesota's existing sulfate limit of
10 parts per million in wild rice waters was adopted and
approved by the U.S. Environmental Protection Agency

For most of the past 44 years since
Minnesota's wild rice sulfate standard was adopted the
job that MPCA has been doing is clear, avoid imposing
sulfate limits on polluters upstream of wild rice
waters.

Only once in Minnesota's entire
history has the MPCA used the wild rice sulfate standard
to limit pollution. In 1975 the MPCA tried to apply the
10 parts per million standard to sulfate discharge from
Minnesota Power's Clay Boswell coal plant.

Minnesota Power got a variance with a
higher limit on sulfate. However, by about 2000, with
no explanation in the PCA files, Clay Boswell permits no
longer limited sulfate.

From the mid '70s to 2010 the
Minnesota Pollution Control Agency did not enforce the
wild rice sulfate standard at all. In 2010 the EPA
wrote letters to the PCA advising that Minnesota must apply its 10 parts per million wild rice sulfate standards in upcoming mine permits.

In 2011 two United States Steel permits for mine expansion did have a wild rice sulfate permit, but one permit delayed its application for six years, the other for seven years. Since 2011 no permits issued by MPCA have included a limit on sulfates to protect wild rice.

In 2015, while the MPCA was working on its proposed rule, the Minnesota legislature passed a law telling the MPCA they could not issue, modify or renew water pollution discharge permits that "require permittees to expend money for treatment or mitigation of sulfate."

At 2016 session law went even one step further. The U.S. Steel final sulfate limits that were set in 2011 were "no longer valid" and compliance was no longer required.

So, right now no Minnesota permits currently impose any limits on sulfate to protect wild rice. With this context I'd like to turn to the MPCA's proposed rule text.

In our written comments I'll include rule citations and explain in more detail that none of
the rule sections described below are needed and reasonable.

First, Minnesota's existing rule state a sulfate limit of 10 milligram per liter, same as parts per million, should apply when wild rice is present.

Minnesota's proposal to delete this text is not needed and reasonable. And neither is the proposed equation that would allow much higher levels of sulfate in the presence of iron.

PCA's proposed sulfate rule would only apply to wild rice with an undefined subjective density or lushness. This unprecedented constraint applying density to a beneficial use is unreasonable.

Sulfate pollution would be averaged over the entire year before it could be considered a violation. No other standard does this, it's unreasonable.

Even if a polluter discharged too much sulfate averaged over an entire year the MPCA rules would only count an exceedance that took place at least two years out of ten. No other rule allows years of effluent violation.

Under the proposed rules MPCA could set a less stringent alternative sulfate limit if the
data showed a lower than expected sulfide level. It
could not set a more stringent sulfate limit if sulfate
limits were higher than expected.

Under the proposed rules the MPCA
calls for a less stringent site specific sulfate limit
if the MPCA determined that wild rice wasn't being
harmed at a site, but could not set a more stringent
sulfate limit if the wild rice was actually being
harmed.

Finally, just in case these other
rules were too subtle, MPCA's proposed rules have a
provision I've never seen anywhere in law, that if the
MPCA determines that a polluter's effluent will not
affect "wild rice beneficial use" the Commissioner must
not establish a water quality based effluent limitation
for sulfate to protect wild rice.

This type of plan is unprecedented in
setting standards. And it really creates an
individualized view rather than an overall standard and
creates multiple opportunities at every step of this
rule for the interested parties, the polluters, to
interfere with application of the standard.

From our perspective MPCA's proposed
rules would not protect wild rice, they are not needed
or reasonable. And from our Legacy's advice, we believe
even these rules that MPCA proposed will never bend over backwards far enough to satisfy the industrial polluters.

What they are seeking is the result they've had for 44 years, that the Pollution Control Agency would continue to avoid setting limits on sulfate pollution upstream of wild rice waters. Thank you.

THE JUDGE: Thank you. Did somebody have a question? Okay. Well, I think we've just gotten through everybody who's checked off they wanted to speak at the hearing. Let me make sure that I'm right. Because then we can go back and see if anybody wants to speak again.

Actually, no, then what I will do is ask if there's people who didn't say they wanted to speak but have decided that they do want to speak. And I'm going to go through these pages one more time. Everybody who has said that they wanted to speak at the hearing has spoken.

So, are there people who have -- who are here, either who signed up or didn't sign up, but who didn't say that they wanted to speak who would like to speak at this time? Feel free if you do, just raise your hand and I'll call you up. Anybody? Okay.

Are there people who have already
spoken who would like to speak again? Anybody else?
Okay. I have Mr. Beranek and Mr. Anderson. Anybody else? Okay. The other thing is I know that the -- some members -- staff of the PCA have said that they would like to speak.

So, I could either have them respond to some of the comments that have already been made or I can have you two speak first. Would you folks like to go first or would you like to hear more from the audience?

MR. NEBLETT: We'd like to finish.
THE JUDGE: Hear more comments?
Okay. Mr. Beranek or Mr. Anderson, do you have a preference as to which of you goes first?

MR. BERANEK: I'll go first.
THE JUDGE: Okay. If you could when you come up to the front reintroduce yourself for the record, that would be good. Thank you.

And I'm going to -- well, we certainly seem to have time now, so I will move my time limit at this point to ten minutes and we'll see how we're doing at that point. So, okay.

MR. BERANEK: Hello again, Your Honor, Rob Beranek, B-e-r-a-n-e-k. And as a reminder I represent Cleveland-Cliffs, Inc.
What I was going to finish with is that within the rule there's a proposal that the PCA put in there for leaving the Commissioner the opportunity to develop an alternate standard or a site specific standard where there's information presented.

Ms. Maccabee characterizes us in the industrial community as a group that's looking to continue polluting for many decades. I strongly disagree.

I'm a staunch environmental steward and spend a lot of my free time outdoors and look to protect it, in both my professional and personal life.

This is an exceptionally complicated and unique water quality standard. I think that with the amount of information available today in front of the PCA and in front of us as a regulated community, that we need to preserve alternate methods when new information comes to light for developing different standards than what the proposed equation predicts.

I'm certainly not looking to keep my foot in the door for 44 years of pollution, that's not the case, but am looking to make sure that this rule provides the opportunity when new information or site specific information is presented that that can be incorporated into development of the sulfate water
quality standard.

In particular, you'll see on Page 69 of the technical support document that a research project that was done on Second Creek found that there were elevated sulfate levels above what the proposed equation would predict, would be toxic to wild rice and the sulfide in the sediment was significantly lower than the toxic threshold.

So, we already have site specific information in hand that supports these alternatives or the need for them, I should say.

So, with that rationale -- I'm sorry, the proposals for the alternate standard and the site specific standard are on Pages 89 through 91 of the SONAR. Moving on from that --

THE JUDGE: I just want to clarify. You're saying that you support those; is that correct?

MR. BERANEK: I do, I find that it's reasonable. In Section 6D3 of the SONAR and elsewhere the PCA proposed using a collection of different sources of information to support the decision to list a wild rice water.

Two specific comments on this. And I'll provide more detail in my written comments. First, the legislature in 2011 directed the agency to develop
criteria and include at a minimum a history of harvest, acreage, and density.

In my written comments the word "and" will be bolded and underlined. The agency is proposing a system whereby any one of these three criteria may be used.

To point you directly to where I see this in the proposal, there's the word "or" is in the ruling, which is at 7050.0471, Subpart 2.C and that's on Page 122 of the SONAR.

So, I believe that that "or" that's on Page 122 of the SONAR is not consistent with the directive of the legislature, which by my reading of the 2011 legislation on this matter requires that order be an "and."

Further, certain water bodies of interest to Cliffs do not have sufficient information to be listed. For example, Day Brook and that has Water ID Number 07010103 --

THE JUDGE: Say that one more time, 0701 --

MR. BERANEK: 0103-542.

THE JUDGE: Okay.

MR. BERANEK: Is proposed for listing. There is one report that was prepared in the
listings as permittee, that was Hibbing Taconite Company. And I reviewed the report that's referenced. The report referenced as support and conclude -- can you hear me?

THE JUDGE: I can hear you.

MR. BERANEK: All right. I reviewed that report and concluded insufficient information is present to assess if it meets the listing criteria. I'll provide details of the portions of that report that I reviewed and support for that conclusion.

So, to sum up my remarks from now and before, I find there to be overwhelming scientific support for the elimination of the current 10 milligram per liter sulfate standard.

My comments will further detail the serious questions that we have about the support for there needing to be a sulfate or sulfide standard at all.

As I mentioned before, if these questions are successfully addressed by the Pollution Control Agency though, I want to remind both the agency and yourself that Robin Richards from Ramboll made recommendations earlier in this year that greatly improve the error rate of the proposed equation from an area of 20 percent down to 4 percent.
The magnitude of the potential impact of this water quality standard is far too great -- simply far too great to not give these improvements more serious consideration.

Thanks again for your time, Your Honor. And I'm happy to answer any questions you have on my comments.

THE JUDGE: I think I took this note earlier, but the error rate in the equation that Ms. Richards proposed was 4 percent; is that right?

MR. BERANEK: That's correct.

THE JUDGE: And -- well, I'm guessing -- will the agency be addressing that in your comments? Okay. I believe the agency will address that then. Any questions for Mr. Beranek? Any questions? Okay. Thank you.

MR. BERANEK: Thank you.

THE JUDGE: Mr. Anderson?

MR. ANDERSON: Thank you, Your Honor. For the record, Kurt Anderson, K-u-r-t, A-n-d-e-r-s-o-n. Again, I'll be submitting detailed written comments on some of these technical issues.

Briefly, by way of background, I also wanted to point out the importance of wild rice not only to myself, but to the community I'm in.
I live in Brookston, Minnesota, B-r-o-o-k-s-t-o-n, which is on the Fond du Lac Indian Reservation. I'm not a band member, but I have family and friends who are and fully recognize the importance of wild rice. It's not only important ecologically, but important culturally.

And that's what makes this so important, this regulation, that we get this right because wild rice has a variety of challenges in front of it.

In fact, if you talk to wild rice researchers and others who hand harvest or work in paddies, they all say there's numerous challenges that wild rice faces, including water flows, elevations, invasive species.

So, I want to be certain that if we're going to implement something like this in the community I live and work in, that we get the science right, that's really the most important part to me.

There are a few things that I didn't get to earlier that I just wanted to point out. I have a lab background and laboratory studies are very useful because they're very precise. And they can isolate the impacts of something like sulfide against something very specific like wild rice.
When the original study was submitted from the MPCA to their own peer reviewers, the peer reviewers recommended various changes, including they should redo the hydroponic studies, they should do the exposure so that only the rooting zone is impacted, and they should look at the effects of iron, further hypothesis.

Again, that study did all of those things. And in the SONAR on Page 69 and 71, the MPCA has stated that no design is necessarily more correct than the other. And I would disagree with that.

Because sulfide by its very nature doesn't exist in the water column when there's oxygen present. The only parts of the plants in the MPCA study would show that whole level, the 120 level of impact, were the green parts of the plant, the shoots and leaves.

So, you need to be very careful to expose the right part of the plant or correct part of the animal. Otherwise, the results aren't going to be accurate or aren't going to give you a clear picture of what's actually happening.

That second line of evidence, Your Honor, that I think really needs to be understood is these outdoor container studies had significant
challenges in front of them from a test design standpoint. And that includes the size of the containers, the water flow, the renewal rates, et cetera.

When I was working in the laboratory business we had a threshold of only 20 percent of our controls, which is no toxic added. Only 20 percent basically could suffer mortality otherwise the test was invalid, you had to throw it out.

You could never use it to register a chemical product or to submit to an effluent testing permit requirement for the State.

And in the outdoor container study 72 to 84 percent of the seedlings in the controls died. And the MPCA has still chosen to take that data and use it as part of their multiple lines of evidence.

And that could not be done in the regulated world if you were looking to satisfy a permit condition or register a product. So, that's very important. Again, I'll have more on this in my written testimony.

But on the field studies the one thing I do want to say is that when you look at a conventional metric, basically as sulfide increases, do you get a toxic response. The MPCA's field data has a
wealth of information on this, fantastic source of information.

And when you look at the stem density, I argued this earlier that the density stand, which is 150 stems in a square meter, about the size of a hula hoop, if you look at the stem density and you remove a couple high sulfide waters that have a lot of recreational development, you actually see wild rice increase as sulfide increases.

So, at 120, as MPCA is proposing in this rule, anything above that is unsafe. Yet, 57 percent of the water bodies in the state that are above 120 have wild rice present to some degree. So, that doesn't make a lot of sense. I don't think that's a reasonable interpretation of that field data.

And, finally, Your Honor, just to give a brief background on my specific experience at Minnesota Power, the Boswell Energy facility does indeed have a sulfate limit, it's a mass base limit, and it was increased from the proposed 10 to a seasonal limit of 40 to 60 parts per million.

The most recent studies we have on that show that downstream of our discharge the wild rice is actually growing better than it is upstream of our discharge point, where upstream there's lower sulfate.
levels.

Unfortunately, for a real life example of what this proposed regulation can do, based on the information we have thus far, had we had this regulation with 120 part per billion sulfide limit back in the 1970s, if that was implemented, our customers at Minnesota Power, residential, industrial, would have had to help pay for sulfate treatment to reduce sulfate.

That's what this equation would have meant back then to Boswell. And it could have been millions of dollars. And yet, we would have reduced sulfate and the wild rice wouldn't have benefited.

That's a real thing that our customers and Minnesota Power would have had to face had this regulation been in place back then.

So, those are some of the highlights of my concerns with this proposed regulation and that 120 protective limit. Thank you.

THE JUDGE: Thank you. Anybody with any questions for Mr. Anderson? Okay. Thank you. I have another sign-in sheet here. Any additional speakers? Yes. Alex Spitzer?

So, Mr. Spitzer, I had been initially limiting people to five minutes, but now it's ten minutes. So, I think we can give you the ten-minute
limit, given the time that -- we've got plenty of time at this point.

Speak slowly so the court reporter can take down what you're saying. If I need to I will slow you down, ask you to spell something. And people are able to ask you questions, I will ask you a question if I have one. Okay?

And please introduce yourself, spell your name, let us know where you live and if you're representing anyone. If you're here on behalf of an organization let us know who that is. Okay? Ready?

MR. SPITZER: Yeah.

THE JUDGE: All right. Thanks.

MR. SPITZER: Hi, my name is Alex Spitzer, S-p-i-t-z-e-r. And I'm from Minneapolis, I'm a senior at the University of Minnesota and I'm studying environmental law.

I have learned a plethora of things about environmental law and in general from the University of Minnesota.

One of the most prominent things that I have learned thus far from the university is how indigenous people are continuously taken advantage of and treated unfairly when it comes to law, especially environmental law. This is why I'm here today to urge
you not to change the wild rice sulfate standard.

Minnesota Chippewa and Dakota tribes have uniformly stated on numerous occasions that they are strongly against changing the sulfate standard rule based on their extensive environmental experience, as well as the importance of wild rice in their cultures.

The tribes have pointed out a collection of scientific fallacies in the new proposed rule that cannot be overlooked.

In addition to having no scientifically defensible basis for changing the sulfate standard, changing the rule would also require a misunderstanding of the beneficial uses of wild rice.

The 1854 and 1837 treaty reserved the tribes' pre-existing sovereign to hunt, fish, and gather wild rice in territories that were ceded by the tribes of the United States.

One needs to acknowledge the unique ecological and cultural values of wild rice when determining its true beneficial uses. Wild rice is used as an essential food source for humans and wildlife. Even small isolated stands of wild rice are imperative to promoting biodiversity. In addition to providing food, wild rice also provides a nesting habitat for some wildlife. Wild rice also
increases water quality, improving biodiversity for aquatic life as well.

It is difficult to accurately estimate the real value of the ecological significance that wild rice has, but it is impossible to value the cultural significance. This is because wild rice is priceless to the tribes of Minnesota. It is sacred to their culture and needs to be considered as such.

This rulemaking decision partly impacts the indigenous tribes of Northeastern Minnesota most fundamentally and the State should not just ignore them and discount their importance.

We should not take advantage of the tribes because they don't have the political power to fight back. We need to acknowledge that changing the rule is not just environmentally absurd, but would also irresponsibly and unjustly decimate the culture of the indigenous people in Minnesota. Thank you.

THE JUDGE: Thank you. Anybody have any questions for Mr. Spitzer? Ms. Maccabee?

MS. MACCABEE: Your Honor, I wonder if we could have a couple minutes I could respond to a few of the things that were just raised by Mr. Anderson and --

THE JUDGE: I just want to see -- you
will certainly have an opportunity. I want to see if there's other -- a couple new people just walked in, so if they have things they want to say I want to let them go first. Thank you.

Are there -- Ms. Nankivel, are there more new people to speak?

MS. NANKIVEL: No.

THE JUDGE: Okay. Ms. Maccabee, do you want to come up to the front?

MS. MACCABEE: Thank you for the extra time, Your Honor. Just a couple points. The statement was made, I think it was in representative of Cleveland-Cliffs that there should be no standard for either sulfate or sulfide. And that was actually one of the things proposed by the mining industry to the legislature in 2011.

And what happened at that time was the United States Environmental Protection Agency called attention to the fact that the Clean Water Act doesn't allow a state to simply remove a standard unless there is a reviewable preservation of the designated use and a scientific basis.

So, even though it is clear that the industry has wanted to simply remove the standard, the Clean Water Act, as well as our own rules about need and
reasonableness of rule changes, requires that there be a protection of the resource, especially when you're taking away a rule that was adopted under the Clean Water Act.

Just a couple more small details. I think the statement about Minnesota Power that I made was not that there was no limit at all on sulfates, but the wild rice sulfate limit wasn't applied.

And that is correct, mass based sulfate limits are different and they've been applied irrespective of the presence of wild rice.

THE JUDGE: I just want to ask for point of clarification, I should have asked this earlier, can you explain the difference between a mass based limit and the 10 milligram per liter limit as it's stated that way?

MS. MACCABEE: There are mass based limits even in very old permits that have not been updated for a quarter of a century. And they're based on the general volume of sulfate in the process.

What's unusual and distinctive about the wild rice sulfate limit is it's based on concentration. And it says that the concentration in the receiving water can't be more than 10 parts per million because of observations -- in John Moyle's
observations, he was a Department of Natural Resources scientist and made observations over hundreds, I think the last thing I read was in over 2,000 lakes.

And he observed that the large wild rice stands were found almost exclusively in waters with concentrations in the surface water of 10 parts per million or less. And above about 50 milligrams per liter there basically were -- he used different words to frame it, but basically there weren't stands of wild rice.

What's really one of the interesting things about the field study that was done by the University of Minnesota under the PCA's control in this situation is they found almost the same thing that John Moyle did. Almost all the waters that had wild rice were clustered at 10 parts per million or less.

And if you just look at the data on where there was wild rice at anything greater than 5 percent of coverage, there are few -- less than 5 percent situations where a lake or a stream had wild rice in that higher sulfate.

So, what is important in looking at this standard is that it's a concentration standard, it's a concentration of how much sulfate you can have in the water. And the field study, one of the wonderful
things is that -- we like to say if it was done before
2000 it's old.

But the data shows the same
distribution that was published in 1944 by John Moyle
and updated in his memoranda to the Pollution Control
Agency in 1975. So, I hope that helps.

I mean, you're hearing a layman's
understanding. I'm not pretending that I'm a scientist,
but as a layman who's been working with scientists since
2009.

You heard several comments from
industries disparaging the outdoor container or mesocosm
studies. And I've been working with this research, I
was on the advisory committee, I've read every report,
every published report, hundreds and hundreds of pages

I spent hours and hours talking to
both the tribal scientists and John Pastor to understand
his research. The mesocosm studies, from my perspective
and the perspective of the tribal scientists, the most
important research base in this entire huge study that
was done by the Pollution Control Agency.

And the idea that they should be
discounted because there was mortality of certain tanks
in one year, John Pastor's article, which I think
several Pollution Control Agency staff were also co-authors, was published. And that one-year mortality is explained.

In the peer review committee that was responsible for publishing that article did not believe that that discounted the results. And I think that is somewhat cynical to discount them.

What the experiments allowed John Pastor to do and his research team were vary things like sulfate and iron and see what happens. Look at sulfate at various levels and see how long it took for there to be effects.

Look at the whole plant and see does sulfate at 150 milligrams per liter affect the growth of seedlings? Does it affect how big the plant gets? Does it affect if the seeds ripen?

And his article, which the Pollution Control Agency has included in their exhibits, and I'm sure others will also, demonstrated that sulfate additions to the water do impair the wild rice. And that, there are also sulfide increases in the sediments that correspond to that.

So, I think it's very important the mesocosms be looked at. And the peer review committee did say that there should be experiments done with iron.
Unfortunately, those were done after the study was ended. So, they weren't funded by the State, but there are those studies done.

And finally, this last young man who I sometimes work with, cited what the tribes believe. And I'm sure that the tribes will put this into your record. But the Minnesota Chippewa tribes have signed a letter with all the Chippewa bands signing on.

And the Minnesota Indian Affairs Council has also signed a letter which includes both the Ojibway tribes, which we also call Chippewas, and the Lakota tribes. And they are uniform in saying that wild rice sulfate standards should apply to all the wild rice waters and support the existing standard.

So, there will be written documentation in your record of those things.

THE JUDGE: Thank you. We have somebody else here? Ms. Reyer? Is that the correct pronunciation?

Ms. REYER: Yes.

THE JUDGE: So, you're at a ten-minute time limit at this point. And please, when you begin, introduce yourself, let me know where you live and if you're representing anybody, any group or organization, please let us know that, too.
If you have a statement that you would like to have -- and I should have said this to the other people who have spoken recently.

If you have a written statement that you would like to have entered into the record I can take that and mark that as an exhibit today. You can certainly also file things electronically with us and it will be part of the record that way as well.

MS. REYER: Thank you. My name is Jane Reyer and I am here representing Friends of the Boundary Waters Wilderness. I live in Minneapolis. Do you need my address?

THE JUDGE: Minneapolis is good enough. And, Ms. Reyer, your last name is spelled?

MS. REYER: R-e-y-e-r.

THE JUDGE: Thank you.

MS. REYER: And Friends of the Boundary Waters will be submitting more extensive written comments. I just prepared something very brief today because I thought I would have five minutes.

There's one point in particular that I wanted to talk about that I think -- I think most of the things that we will have to say have been covered by other parties. So, I don't want to repeat things.

There is one point that I'm not sure
that others will have covered. I just came in, so I'm not sure about that. I hadn't heard about it so much from other people. It has to do with the identification of 120 micrograms per liter as the standard based on the EC10 level of protection.

So, those who sat through the peer review panel discussions, and I was one of them, may remember that the discussion about the evidence that could be garnered from each of the three different types of studies that were done, the hydroponic and the mesocosm and the field studies, the panel cautioned the MPCA not to confuse these studies with each other and to confuse what evidence could be garnered from each one with the evidence which could be garnered from the others.

All three of the studies do point to porewater sulfide as a causative factor in the decline of wild rice, but the three studies are not all equally indicative of the long-term survival of wild rice in the field.

My recollection of the peer panel discussion was that the field study was well designed and had a sufficient number of data points to be scientifically defensible and really gave the best indication of what actually happens in the field, which
is not surprising because it was a field study.

So, I'd like to point out the differences between what EC10 means when -- in the context of the hydroponic and mesocosm studies versus in the context of field study.

When applied to the hydroponic and mesocosm studies that EC10 measures the difference in emergence C production and -- or these studies measure the difference in emergence C production and weight gain under controlled circumstances.

So that, that's a level at which 90 percent did not see a difference in any of these measurements. And that's the EC10 that the MPCA's materials about this standard that they're proposing.

That's really the EC10 that they're referring to. And that's the EC10 that the proposed standard is based on. But that's a different EC10 than the EC10 that applies to the field study.

And that EC10 is, in essence, the number at which 90 percent of wild rice waters will be protected. In other words, 10 percent of the waters themselves will not be protected based on the way that EC10 is being used in the context of the field study.

It's a very different factor than the number of plants that will survive, which is kind of the
idea behind the hydroponics and the mesocosm. And I think MPCA's analysis has confused the two.

It's very important for regulatory reasons because the Clean Water Act is written to protect all of our waters and not just 90 percent of them. It seems quite clear from the evidence that MPCA has provided that standards based on the proposed equation will not protect all wild rice standards.

They are, in essence, making the decision to allow 10 percent of the waters to eventually lose their wild rice.

So, I think that other people have probably talked about some of the scientific evidence that MPCA hasn't seemed to include in setting the standard.

I think the study that John Pastor has been doing of root plaque from iron precipitation and also there's quite a bit -- there has been quite a bit of discussion about increased eutrophication resulting from sulfates.

I'm not a scientist, so I can't really talk anything more about that, but those are two factors that really tend to affect the rate of wild rice reproduction and survival over more than one growing season.
So, it's something that's going to stand out over time as opposed to in a study, for instance, with the mesocosms and the hydroponics that are just evidence of sort of one generation of plants. And I think others probably had more to say about that, but I just want to repeat that the peer review panel felt the survival of wild rice over time, over decades rather than a one-year growing season was necessary to account for these types of factors. And it seems to me that they might also be the reason why we might see a decline in wild rice in particular water bodies, even though the sulfide level in the porewater and the sulfate level in the water might be at a level that these hydroponic and mesocosm studies indicate perhaps should be protective.

So, I think that's pretty much -- that's the main point that I wanted to talk about. I do want to also just mention something that I'm sure other people have mentioned today. And that is that we think the standard is simply unlikely as a practical matter to be enforced in a way that will protect and restore wild rice.

And I think that most of the people in the state who care about wild rice understand that it's not just a matter of protection at the level that
we have now, but it's also about restoration.

Minnesota Pollution Control Agency has become immobilized in its attempts to renew waste water discharge permits for taconite facilities in the situation where the sulfate standard is relatively straightforward as it is today.

I cannot imagine how creating a situation where no standard applies to any water until MPCA does the field studies and takes the action to set the standard is going to actually improve conditions for wild rice.

Whatever it says on paper the reality of the agency is that I just cannot see how wild rice is actually going to increase in our waters with this change in the standard.

So, in closing, I'd like to remind the agency that the point of this proceeding and the point of setting a water quality standard is to protect the resource. What this entire proceeding should be about is protecting wild rice.

I remember the peer review panel making this very point during their discussions. The agency is going about this backwards. And those who were there for the peer review panel I think will understand that the peer review panel really felt that
there was something a little backwards about the way the agency is going about this.

The agency has been looking for the highest level of sulfide, and by extension sulfate, that wild rice is able to tolerate in order to allow the highest possible level of discharge. And I really think that's what the PCA is about when they're doing this.

But instead the agency should be setting the standard at the lowest level that is justified based on the science in order to actually protect wild rice.

So, that's all I had to say. And I'd like to thank you for the opportunity to provide input.


Were there agency staff who wanted to make some comments responsive to things that have been -- to comments that have been made?

MR. NEBLETT: Yes, Judge Schlatter, there are. We request, if possible, maybe five minutes to organize with respect to who is going to respond to what points because there's a number of points to address.

THE JUDGE: Sure. Why don't we take
a ten-minute break, give the court reporter a chance to take a break here and then we can come back and take your comments.

MR. NEBLET: Thank you.

THE JUDGE: Thank you.

(At this time a brief recess was taken from 1:55 p.m. until 2:10 p.m.)

THE JUDGE: Okay. So, the agency has some comments. Is this going to come from one or several of you? Mr. Neblett, do you have a plan here?

MR. NEBLET: Two individuals, Scott Kyser will talk about the -- provide additional clarity regarding mass versus concentration limits. And then, Ed Swain will also talk about protective levels of sulfides and development of the equation.

THE JUDGE: Okay. Why don't you go ahead and proceed then. And you've got microphones in front of you. Is my little microphone on your table? You know what? It may be that you don't need it.

Why don't you try talking without it because I found that when I turn my microphone off it actually acts as kind of a speaker. So, that might be enough to work with this recording. Let me try it. Go ahead and let's see how it works.

MR. KYSER: Can you hear me?
THE JUDGE: Yes.

MR. KYSER: Hi, my name is Scott Kyser, that's S-c-o-t-t, K-y-s-e-r. I'm a professional engineer and I work in the Effluent Limits Unit for the State of Minnesota, the Pollution Control Agency.

So, earlier the question was asked about the difference between mass and concentration water quality based effluent limits. So, I'll just take a stab at answering that.

So, limits are a function of the standards. So, limits are an expression of the standards, they are not the same thing. So, we have different ways of expressing limits that are protective of the standard.

And two ways we do that are concentration limits and mass limits. So, a concentration limit that's maybe more intuitive, you can think of it as a proportion. For example, several presenters today have used 1 milligram per liter and 1 part per million interchangeably.

That's because they are. 1 milligram per liter is equal to 1 part per million, it's one part in one million parts of volume. A mass limit -- so, that was the concentration limit, it's a proportion.

A mass limit, you can think of it as
the amount of pollutant that can be discharged in a
given day. So, mass per time, amount of pollutant per
time. So, there's different ways of expressing limits
that are protective of water quality standards. Does
that clarify for you?

THE JUDGE: I think so. Is it
functionally, then -- is the choice of expression used
when you're talking about essentially a discharge versus
receiving? Is that when the choice is made to talk
about mass versus volume?

MR. KYSER: Yeah, so our choice of
which one we choose is a function of how we decide to
express a limit. So, we consider things like receiving
water dilution capacity or the amount of variability and
the effluent.

So, that's why we use the two
interchangeably, to allow us maximum flexibility to
protect the water quality standard.

THE JUDGE: So, I'm going to come
back here with one more question related to that. Is it
accurate, then, to assume that you might be more
likely -- well, I'm thinking about if there were
multiple sources of discharge and you're thinking about
one body of water, you would be, I would think, more
inclined to think about the receiving standard, the
concentration because -- as opposed to if there is a single source and a single body of water relationship?

MR. KYSER: Yes. So, we would use a combination. In a situation where you had multiple dischargers going into one single, for example, say a lake, we would assume that that lake can receive a certain amount of pollution load.

And then we would use a process called waste load allocation to allocate that load equitably among those three dischargers.

And we -- typically we would use a combination of mass and concentration limits to protect that one single receiving water.

THE JUDGE: Okay. Thank you.

MS. LOTTHAMMER: Your Honor, if I could just add one item to this. Again, Shannon Lotthammer with the Minnesota Pollution Control Agency.

Just to be sure that there isn't any confusion between what Scott was just talking about and the proposal for the standard, the standard is proposed to be expressed as a concentration.

So, the protective level of sulfide is parts per billion, micrograms per liter. And then, the numeric standard that is calculated or based on a measurement is milligrams per liter or parts per
million.

What Scott was referring to was that when we then have a standard in place and we need to evaluate permits to determine if they're being protective of the standard, we can do that evaluation and express any restrictions that end up being necessary in two different ways, either as a mass limit or as a concentration limit.

And that's more about the facility and the nature of the facility and discharge. But the standard itself is a concentration.

THE JUDGE: Okay. Thank you.

MR. KYSER: So, I also want to clarify a little bit about what this LCCMR study that investigates sulfate treatment for municipal treatment plants, what that study entails.

So, I guess I'll say what that study will do, what it won't do and some reasons why the MPCA wanted to investigate sulfate treatment for municipal waste water treatment plants.

So, I'll start with what this study will do. What it will do is it will review and rank treatment technologies for municipal waste water plants they can use to treat sulfate. It's going to select the best available technology.
And then what it will do is it will take that best available treatment technology for treating sulfate at a municipal waste water plant and assign likely costs to that technology for a municipal waste water treatment. So, that's what the study will do.

I'm going to talk about why we wanted to sponsor this study. One of the reasons we wanted to sponsor it was because if the MPCA can kind of narrow down the costs associated -- the uncertainties around the costs associated with sulfate treatment, if we can discover it and then share it with other communities, that will avoid them having to hire consultants to do that work for them.

So, this kind of engineering level analysis costs between 15 and $150,000 at a consulting firm. If we can do it once at the MPCA, then we can save all the affected communities that individual cost, that collective cost.

And so, I also want to emphasize what this project will not do. The study will not estimate costs for industrial facilities, it's only supposed to focus on municipalities.

And it is not a site specific facility level plant, this is a high-level plant. You
can think of it as a 10,000-foot level treatment plant. If a full design is needed, more rigorous analysis will be required.

And another reason we wanted to do this study is so that we can associate costs with sulfate treatment so we can better estimate affordability for municipal waste water plants across the state.

I also want to clarify that this study is for -- part of the reason we wanted to perform this study was to aid in the implementation of the sulfate standard in the future. This study was not meant to be part of the rulemaking process.

**MR. NEBLETT:** Thank you, Scott. Ed, when you're ready.

**MR. SWAIN:** My name is Edward Swain, that's E-d-w-a-r-d, S-w-a-i-n. I'm a research scientist with the Pollution Control Agency and I've worked on this wild rice project since it started in 2010.

I want to clarify by discussing two topics that are different from each other and get convoluted sometimes. The first is the identification of the protective concentration of sulfide.

And the second topic is how to translate that sulfide concentration that's identified
as protective into a sulfate standard for that particular wild rice water.

So, first, how did the Pollution Control Agency identify protective concentration of sulfide. We performed three different types of studies, hydroponic, mesocosm and field. And a peer review panel evaluated our data.

THE JUDGE: Either your microphone is cutting out or you're just not quite close enough to it.

MR. SWAIN: I'll try closer first.

The peer review panel did identify the field study as being particularly strong and pertinent to identifying protective sulfide concentration and urged us to examine it in more detail. And we performed a lot more statistical analysis after that peer review panel.

Nevertheless, the three types of studies, the hydroponic, mesocosm and field did agree with each other in identifying a protective sulfide concentration quite well, as we graphed on Figure 3 on Page 70 of the SONAR.

Quite often the calculation was done as so-called EC10, which is the effect concentration 10, 10 percent reduction from controlled condition. I think there's a misunderstanding about what that means.

It doesn't mean that 10 percent of
the wild rice is going to die at a concentration above
the identified protective concentration. Instead, it's
an internationally recognized way to calculate a
negligible effect level.

So, an EC10, we're not expecting any
effect on the species that's being studied, in this case
wild rice. So, all three approaches tended to agree
with each other pretty well.

In our analysis we did identify
120 micrograms per liter as a protective concentration.
That's not the same as a toxic concentration at all. In
fact, it's a low concentration that we're confident that
the organism is not having any effect.

And above that, it's not a bright
line, we don't start having an impact immediately above
120. Instead there's a progressive slight decline in
the probability of wild rice being present in the water
body and the density of that wild rice when it is
present.

So, 120 was identified and then we
had the task of translating that to sulfate
concentration that corresponded to it for the different
wild rice waters.

And as Shannon explained in the
beginning presentation, there's three variables that are
equally responsible for controlling the sulfate production, the sulfate, the iron, and the organic carbon. We can't control the organic carbon or the iron, but we can control the sulfate. And that's why we regulate the sulfate.

Now, in this kind of statistical analysis it gave us the opportunity to look at how often we're wrong. And this is something that is just beginning to be done anywhere in the world, to look at the error rate of a water quality standard.

Vermont was the only other state that's done it, they did it for phosphorus standard. It is recommended though, EPA endorses this approach.

So, what does an error rate of 20 percent mean that's been quoted today? That's the sum of being too low or too high on the standard. Because no standard is perfect. This is all statistical and the environment is a complicated place where different things happen.

The 20 percent is a sum of picking numbers that were either underprotective or overprotective. So, in this case they're about 10 percent each. So, about 10 percent of them for instance, are overprotective.

And that's a concern, of course, for
any regulated party, that they might be required to
control sulfate when it's not necessary, it's an
overprotective number. But our alternate standard will
mitigate this number a bit.

We don't have a calculation about how
often we can mitigate the overprotective numbers, but
the true overprotective calculation would be lower than
10 percent.

So, the situation we get into where
we require somebody to control sulfate when it's
actually not necessary to keep the sulfate below 120,
which is what overprotective means, would be somewhat
less than 10 percent of the time.

THE JUDGE: From a practical
perspective how would the alternate standard come into
play to mitigate that overprotective standard, the
overprotective occurrences there?

MR. SWAIN: The alternate standard
would likely come into play when sulfate is already
elevated above the calculated sulfate standard from the
equation, which I haven't talked about the equation yet.

If the sulfate is already higher and
it's a wild rice water and as far as anybody can tell
the wild rice has been there for a long time and there's
no reason to suspect that it's in decline, then it
appears to be an overprotective number. But then the alternate standard procedure would kick in.

MS. LOTTHAMMER: Your Honor, if I could just add two more things to the provisions that Ed just made. First of all, Ed mentioned that we can't control the organic carbon or the iron and that's why we're focused on the sulfate.

The reason for that is because the organic carbon and the total extractable iron in the sediment act very naturally. So, there's natural conditions that result in those differences from one lake to the next.

It's sulfate that is being added to some waters due to human activities. So, that's why the focus of developing the standard then is on the part that humans influence and that's that sulfate concentration that's being discharged in some cases.

And then, I also want to point out about the discussion about the alternative standard, is that -- all water quality standards have some level of imprecision to them

And as Ed had mentioned, this concept of both understanding and reducing error rates is relatively new in water quality standards development.

So, though there is a percentage of
the equation results that we would expect would not be on point, so that 20 percent error rate, a portion of that would be addressed by the alternate standard approach.

And then, there's still an alternate pathway called the true site specific standard that's available for addressing those other areas of impreciseness.

So, because we have so much information about iron, carbon, total organic carbon, the total extractable iron and the sulfate and the sulfide, we're actually able to propose a standard that is much more precise than the current standard.

It doesn't get rid of all of the imprecision, but there are pathways available for addressing that as site specific information becomes available about a particular water body.

THE JUDGE: Okay.

MR. SWAIN: I do have a little more clarification that I'd like to offer.


MR. SWAIN: We are proposing to revise the current 10 milligram per liter standard because we think there is evidence that this proposed equation offers advantages.
And just to focus in on the error rate, the error rate of the fixed 10 milligram per liter standard is 32 percent rather than 20 percent that the equation offers. And that 32 percent is evenly divided between overprotective and underprotective, 16 percent each.

I do want to emphasize that while it's desirable to have a low error rate, it's -- picking an equation by its error rate is not the way to go because the first highest priority is to protect wild rice.

And the 4 percent error rate that's been offered in discussion today is dependent on changing the protective concentration to 300 micrograms per liter higher than our 120 that we believe is necessary for protection.

So, yes, you can get a 4 percent error rate by moving to 300, but we don't think it's defensible because the density is significantly lower at 300, wild rice density and stems per square meter significantly lower.

And then, just one last thing that's related to equation, I'm confused by Mr. Anderson's assertion that if the equation had been applied to the Clay Boswell facility that it would cost millions of
dollars.

Our data both upstream and downstream from Clay Boswell indicate that the Mississippi River as it flows by that facility is about 1 milligram per liter sulfate above and about ten below. And our calculated standard below is higher than ten. So, according to our equation, no control would have been needed at that facility.

THE JUDGE: Okay. I'm going to let the PCA folks finish and then if people have questions or comments in response I will invite those.

MR. NEBLETT: That concluded our --

THE JUDGE: One last thing, Mr. Swain?

MR. SWAIN: I just remembered one additional point. The point of the equation is to relate sulfate to sulfide given the amount of iron and carbon at a particular site.

And it's a chemical relationship, it doesn't matter whether there's wild rice there or not. So, in calculating the equation, we include sites with no wild rice because it's the chemistry that we're performing statistics on.

MR. NEBLETT: That concludes our remarks.
THE JUDGE: Thank you. Are there people who have questions or comments directly related to what the PCA folks have been saying? And can you raise your hands if you do?

So, Mr. Anderson and Ms. Maccabee -- oh, and Mr. Bock. Okay. I think Ms. Maccabee was the first hand I saw go up. And it would help if you have a microphone, either come up here or there's a hand held there.

MS. MACCABEE: Thank you, Your Honor. Paula Maccabee. Am I audible?

THE JUDGE: You are.

MS. MACCABEE: Just a clarification for Mr. Swain. So, do I understand correctly that when we're talking about the error rate of the calculation with 120 parts per billion or the error rate that was proposed by the Chamber of Commerce that ended up 4 percent or the error rate for the current standard, what we're really talking about is the capacity to predict the specific sulfate/sulfide number, rather than the capacity to protect wild rice?

MR. SWAIN: These error rates are calculated as to whether they're predicting the sulfide concentration correctly. In our technical support document we do go into what happens to the wild rice
presence and absence at particular levels also.

MS. MACCABEE: So, the question of
whether 300 or 120 is the better number can be separate
from the error rate. And the "error rate" for the
current 10 parts per million standard would be how
effectively it predicts the correct sulfide number?

MR. SWAIN: Yes.

MS. MACCABEE: Thank you very much.

THE JUDGE: Mr. Anderson, I think, was next. Thank you.

MR. ANDERSON: Yes, Your Honor. Just
a point of clarification to Ed's confusion on the
Boswell permit. That was not a 10 milligram per liter
standard, if you recall.

Based on research from quite a few
scientist at the time that was set at 40 to 60
milligrams per liter, four to six times higher than the
10 milligrams per liter standard.

So, based on our preliminary
research, the sediment chemistry downstream seems to
suggest something far lower than that. Our sulfate
levels have decreased over the years from what they were
back in the 1970s.

At that time it would have resulted
in a much lower limit than what the 40 to 60 prescribed,
based on that research. So, we would have had to do something to control sulfate, probably would have been very expensive. So, that's the difference between the 10 and what we have at Boswell.

THE JUDGE: So, if there's a response there, I see you nodding, but that won't be taken down in the record. Is there an actual verbal response?

MR. SWAIN: Thank you, Mr. Anderson. I believe that you had said that if the equation had been used it would cost millions of dollars.

MR. ANDERSON: If this equation had been used back in the 1970s in lieu of the 40 to 60, it would have required somewhere around 20 to 25, which would have been lower than the 40 to 60, which meant we would have had to reduce sulfate back in the 1970s.

MR. SWAIN: How high was the actual sulfate in the river the year of discharge?

MR. ANDERSON: In the 1970s?

MR. SWAIN: Yeah.

MR. ANDERSON: I was a couple years old, I don't recall. I don't have that data in front of me.

MR. SWAIN: I would imagine that it's not that different from the discharge in recent years.

MR. ANDERSON: Actually, it would be,
Ed, because we have significantly changed operations
since then, including ceasing a major discharge from one
of our ponds into the river due to our environmental
retrofit. So, we significantly changed it. It
certainly would have been higher before.

MR. SWAIN: Thank you for the
discussion.

THE JUDGE: Thank you. And one more
comment here?

MR. BOCK: So, I think he pretty much
-- am I coming through?

THE JUDGE: If you can just state
your name again for the record.

MR. BOCK: Michael Bock. I think she
already stated my question or clarifying. When you're
talking about error rates, you're talking about the
ability to predict the sulfide concentration above and
below the threshold and not -- and that area has nothing
to do with the presence or absence of wild rice if the
equation predicts it's above or below the threshold
based on the sulfate. Is that a correct interpretation?

MR. SWAIN: The error rates we've
been discussing are how accurately the sulfide
concentration is predicted and has nothing to do with
wild rice presence and absence, I agree.
Anyone else have questions or comments for PCA staff? Okay. Are there others who wish to make additional comments at this time? Okay.

Well, this hearing was noticed until -- to last until 4:00. So, I think that we will be here until 4:00. You all may stay or go as you wish. I may actually -- let's go off the record.

(At this time a discussion was held off the record and a brief recess was taken from 2:40 p.m until 3:55 p.m.)

THE JUDGE: Okay. We are back on the record. And it is 4:00 p.m on October 23, 2017. And there is no one left who wishes to speak at the hearing today.

So, we are adjourned and we will reconvene tomorrow, October 24th, in Virginia, Minnesota. Thank you all. We're off the record.

(Hearing adjourned at 4:00 p.m.)
REPORTER'S CERTIFICATE

I, MARCIA L. MENTH, do hereby certify that I recorded in stenotype the hearing on the foregoing matter on the 23rd day of October, 2017 at St. Paul, Minnesota;

That I was then and there a Notary Public in and for the County of Wright, State of Minnesota;

I further certify that thereafter and on that same date I transcribed into typewriting under my direction the foregoing transcript of said recorded hearing, which transcript consists of the typewritten pages 1 through 154;

I further certify that said hearing transcript is true and correct to the best of my ability.

WITNESS MY HAND AND SEAL this the 26th day of October, 2017.

________________________________
MARCIA L. MENTH
Court Reporter