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# Governor's Task Force on Wild Rice Comments

## Comment submitted 10/1/18

I worked with David's and have a variance for mercury. Want to go back one slide. 4 V's of parties involved for a variance. Permittees, this is where the foot meets the floor. If a permittee will pursue of variance, is in the 4 bullets on the slide. They're crucial and if you don't do it right, and you'll get lawsuits. Our facility has tremendous resources. I don't know how a small facility would get through those bullets without spending a lot of money on consultants. At the other wild rice one MPCA uttered variances rather cavalierly and there is so much more that's involved with them. And they have to go through David too.

## Comment submitted 10/10/18

I've been involved with wild rice for 10 years and defending wild rice standard in litigation and served on MPCA Wild Rice Advisory Task Force for six to seven years and was active in the ALJ process and decision to preserve sulfate standards. This view of operating by consensus is different. Listen to tribal scientists and don't consider their findings purely cultural. They have been doing research longer and we as white people say we are the ones who know science. So in this case that would just be wrong. From my perspective district court, the ALJ, and Chief Law Judge, who all say the standard is needed and reasonable and needs to be protected consistent with the Clean Water Act. It's also important to acknowledge that reverse osmosis is expensive. Technology is feasible but it is not feasible to be the first to do it. What can we do to make this first adopter a more feasible effort? Create incentive or structure to keep the standard and move forward. Please also think about the State of Minnesota has no formal tribal consultation process. The federal government does when talking about resources that are necessary. There needs to be a process that is formal and recognizes tribes and says tribal consultation means more than listening to people and patting them on the heads and going ahead and doing what you were going to. I believe in the standard and MPCA did a good job on the waters list. ALJ said would have been ok to say it was a non-exclusive list. This is a change to bring people together and starting process of reducing pollution and remediating pollution. Sulfate is something we can do something about if we don't just say to first company in line that it's their responsibility.

## Comment submitted 10/10/18

I know many of you. You don't like me but I don't care. You are standing on Dakota land where the water reflects the sky. And the sun warms the land and on it grows manoomin. Wild rice is critical for diet. It's the difference between sovereignty and genocide of a culture, and as an indigenous woman I must stand in defense of water. Sulfide mining is trifecta of death because introduces methyl mercury. The Minnesota standard of 10mg/L would be fine up to a point, but Minnesota has never enforced that standard. In fact it's too challenging for PCA to manage, so what makes you think they could handle a lake-by-lake, mine-by-mine standard? They can't and they don't have the money. And you say mining companies are going to pay for it? That's laughable. They haven't paid for what they've already done. Look at the North American Water Office Facebook page and you'll see map of rice and map of mines which my friends at PCA did after I made them and they went to the

DNR and it is catastrophic. We will have no rice. We need water. Without water what we have is a one-time extraction from these mines for the benefit of the corporate rich. Thank you for your time.

## **Comment submitted 10/10/18**

I'm pleased to have this opportunity to be here. I'm the Executive Director of the North American Water Office, and I've been involved for a long time at the intersection of how resource management interferes with public health and ability to have a sustainable society. You can learn about our work on our website. I'm here to share with you my fear. My fear is that this process is a rouse to enable the one-time extraction. One of the reasons that I'm afraid has to do with the last time we went through this exercise with the previous rule which was rejected. The rouse then wasn't good enough so now we're going to try and do it again. Either we decide that we will protect the rice, the water, the people who rely on these resources, or we decide on more extraction. I don't think from what I've seen and from the history that we can look at I don't think we can do both. I think that if we were serious about the resource needs that we have in terms of the metals and the other resources that we all use—if we were serious about managing those resources appropriately we'd be talking about better management of those that are already in the system. I would like this task force to come to grips with how to manage these resources then talk about what we can get away with in terms of more extractions.

## **Comment submitted 10/10/18**

As a concerned citizen, Jackie Christenson, I live in the White Bear Lake-Hugo area and I've always been concerned about water and wild rice from afar. My story has become more intense the last couple years and I just would like to share that. With 40 percent of Minnesota's waters impaired, already I feel like we have to do everything we can to protect the remaining 60 percent. This standard may not be perfect but at least gives us the chance of that. I came into this as a 2017 as a concerned citizen I dove into the Enbridge line 3 pipeline knowing all pipelines leak. It is an egregious error to do this but the PUC has granted it. Then I read the Polymet plan and I dove into that. It also failed to address the injustice of this project on our native communities on wild rice. I hoped at least this standard would require foreign companies to treat the wastewater. This is before I knew the standard wasn't enforced. So I learned they were trying to abolish the wild rice standards and I attended meetings where the focus was clearly on impacts to business rather than impacts on citizens. The members used the excuse that standard should be eliminated because wasn't enforced. This was reprehensible. Thankfully Governor Dayton vetoed it. We must protect wild rice first and foremost to honor 1854 Treaty. We must stop sulfate pollution. Every one of us in this room benefits from the ecological volume of natural wild rice. Over the course of the last couple years I have been honored to meet a lot of indigenous Native community members. It must be their voice and their science and their teaching first and we can follow their lead.

## **Comment submitted 10/25/18**

We [White Earth Nation] haven't been impacted since no mining in our country. Where are the tribal scientists in this study? Get them involved in this study. The study for the state has been going on for the last 8 years. This committee needs to look at us as well. The state has been stepping on our treaty rights for the last 150 years.

## **Comment submitted 10/25/18**

Black roots are not unusual in plants. The MPCA's technical review panel, with representatives from all over the world, including Dr. Siobhan Fennessy, said this is much ado about black roots. Black roots are common in plants and it is taken as black roots are bad. The only part of the plant that matters is the tip, don't know if it impacts xylem and phloem, when a plant dies, it releases stored nitrogen. Don't assume that with black roots that

nitrogen can't get in. It is already there. The plant takes nitrogen from existing parts to the seeds. The meristem is still living (tip). Dr. Pastor's work was in an artificial system, not a natural system.

## **Comment submitted 11/1/18**

USP Technologies [www.usptechnologies.com](http://www.usptechnologies.com), part of the Danaher Group of Companies [www.danaher.com](http://www.danaher.com) is invested in supporting the efforts of Clearwater BioLogic. USP Technologies is a leading provider of hydrogen peroxide and peroxide based, performance-driven, full-service environmental treatment programs to help purify water, wastewater, soil and air. We specialize in turn-key solutions for municipal wastewater and drinking water treatment; refinery, gas, oil and petrochemical applications; industrial wastewater and air quality treatment; remediation; and UV-Oxidation. USP Technologies endorses the statements made by Clearwater BioLogic and look forward to partnering with Clearwater BioLogic on this project. If you have any questions about USP's treatment chemistry, please feel free to contact Brady Overton, Mid-West Technical Sales Manager at [boverton@usptechnologies.com](mailto:boverton@usptechnologies.com) or Mike Fagan, Director, Industrial Business & Technology Development, Business Development & Strategy [mfagan@usptechnologies.com](mailto:mfagan@usptechnologies.com)

## **Comment submitted 11/5/18**

Sulfate Reduction – An Affordable Solution (correction of previously submitted comment) Clearwater BioLogic LLC has developed an effective and affordable system to biologically and chemically reduce the impact of sulfate and sulfide on Minnesota's waters and wetlands. [ClearwaterBioLogic.com](http://ClearwaterBioLogic.com) This is a three-step process to first biologically convert sulfate to sulfide and then to elemental sulfur with a proven sulfide control system from USP Technologies. The third step then precipitates the elemental sulfur and completely removes it from the system. This combination of technologies provides a low-cost sulfate reduction system at costs of 10 to 20% that of reverse osmosis. This sulfate reduction technology has been in development since 2008. Field tests were conducted on a taconite mine-pit lake with a sulfate concentration of over 1,100 ppm. In a recent stage of this development NRRI, UMD and the UMN participated with research on the system under a MnDRIVE grant. The field work under this grant ended in October 2016. This University research culminated with a report published by UMD in July 2017 titled The MnDRIVE Transdisciplinary Project Implementation of Smart Bioremediation Technology to Reduce Sulfate Concentrations in NE Minnesota Watersheds . The conclusions of this report stated that the biological stage of this system achieved the following: • A robust modular system that operated year-round, even in winter • Monitoring of individual bioreactor modules allowed for effective measurement of performance for sulfate reduction • 90% sulfate reduction from 1,100 ppm regularly achieved • Up to 100% reduction achieved even in winter • Sulfate reduction happened in the top meter of the modules • Sulfate reduction varied within the modules in moving bands • Due to the enormous attachment surface area inside the modules it is likely that the modules could be effectively operated at higher flow rates. • By operating in a taconite mine-pit lake with non-detect mercury there was no production of methyl mercury The second chemical stage of the system converts the hydrogen sulfide generated by the biological stage into a solid particle precipitate that is settled and pumped out of the system. Although positive results were achieved, this stage proved to be difficult and not economically viable. The report calls for more research on this second stage. Since the end of field tests in 2016 and after the UMD report, Clearwater BioLogic has advanced the technology in the following ways: • Measured the effective surface area for bacterial attachment and determined that each bioreactor module has over 25 acres of attachment surface in each 4,000-gallon module. • The huge surface area allows for a large enough population of sulfate reducing bacteria to provide for effective and near total sulfate reduction even in winter. • Discovered that all of the bioreactor modules in the field test did achieved near 100% sulfate reduction in defined regions of the modules. The variation in measured results was caused by the pulse feeding of the electron donor (food for the bacteria). • A new electron donor feed system now provides consistent sulfate reduction to any desired concentration – to as low as non-detect sulfate. • New electron donor blends have reduced operating costs on the biological stage by more than 50%. • Clearwater

BioLogic has allied with USP Technologies to provide a proven, commercially available, patented and robust hydrogen sulfide control system that is commonly used in municipal sewer systems and industrial hydrogen sulfide control. • The USP Technologies PRISC® system converts the generated hydrogen sulfide into an elemental sulfur and iron slurry that is pumped off and removed from the system. USP Technologies PRI-SC • The resultant slurry has the potential to be a soil amendment for agriculture. The business model of Clearwater BioLogic and USP Technologies is to install systems with minimal capital expenditure by the client while charging for the service and the pounds of sulfate removed. Clearwater BioLogic would maintain effective control and operation of systems to ensure that peak performance is maintained. This provides a low-cost system to customers with minimal capital investment and low risk on operating expenses. Clearwater BioLogic is ready now to deploy new pilot and full-scale sulfate reduction systems to treat thousands of gallons per minute of high sulfate water. We believe that our systems

## **Comment submitted 11/12/18**

Contrary to the perception that sulfate will be a problem to wild rice and the environment only if copper-nickel mining is allowed in Minnesota, we already have a sulfate problem in waters that have been affected by taconite mining. This currently existing problem must be addressed. According to a map-based study called The Lake Superior Iron District: Changing Landscapes of Water (<https://www.industriallandscapes.org/story-map.html>), the Mesabi Iron Range of Minnesota has 250 more lakes than it had in 1890. These lakes resulted from the abandonment of open-pit iron mining. Within the Mesabi Range, which is just south of the Boundary Waters, 87% of the the total lake acreage covers old mine-pits. Most of these lakes have filled with sulfate over time. Ores from taconite mining are laced with sulfur-bonded minerals. As water contacts these ores, the sulfate leaches into the water. If it isn't removed, it courses through the creeks that lead out of the mine-pit lakes and into major waterways. Studies have shown that wild rice cannot grow in waters with a significant concentration of sulfate. Rice no longer grows in areas of the Iron Range where it used to be prolific. Sulfate isn't great for humans and other animals either, tending to act as a laxative in high concentrations. As a sideline problem, sulfate-laden waters that pass through swamps (and that area of the state is full of swampy land) convert elemental mercury to methyl mercury. Once it's methylated, mercury passes into the fish and becomes a hazard for all who eat those fish. If we would remove the sulfate from the mining-affected waters before it enters rice beds, municipal water systems, and swamps, we'd solve a good many problems. Until recently, we have, understandably, been stumped over what to do about the sulfate because the only available solution—reverse osmosis—is prohibitively expensive. Now however, Clearwater BioLogic, LLC, has announced that it has an economical biologically-based method to remove sulfate from taconite-mining-impacted waters. Best of all, the process operates at a fraction of the cost of reverse osmosis. This new development, along with others that a sulfate standard might inspire, means that we can solve this problem. A standard will be necessary, however, because no one entity alone will put up the money to remove sulfate (even if the process is not outrageously expensive) unless all are required to do so.

## **Comment submitted 11/30/18**

I have grown up enjoying and being proud of Minnesota's wild rice. Being native to much of Minnesota, I believe that our wild rice crop is worth protecting. We need to support new and better ways to deal with the outdated sulfate standard. I hear that we can AND do have a better approach to protecting, enhancing and restoring our natural wild rice without it being too expensive. I support the solution offered by <http://clearwaterbiologic.com> and would like to see it given the support to let this effort succeed.

## Comment submitted on 12/12/18

My name is Janice Erickson. I am an enrolled Tribal member. My husband and my 5 children are all Tribal members too. Our family, friends, & community are connected to Wild Rice for many reasons. The most important reason is we regularly eat wild rice as a part of our natural diet. Our ancestors have been doing the same for countless generations! We also use our wild rice by culture and ceremonies. It is a part of who we are as a people. I am writing this to voice my concern that we need ensure our water is kept clean. The wild rice is dependent on it. It can not grow or thrive in dirty water. People in general can not grow or thrive in dirty water! It's really awful that mines aren't cleaning up their waste. Their pollution is deadly & hurting us all. Please make sure your report will fight for what is right! Our future, & future generations are counting on you!

I am willing to volunteer my time and commitment to do whatever it takes to keep our water clean. Our lives truly depend on it!

Thank you for your time.