



Tamarack Water Alliance Community Zoom Meeting Wed. July 12, 2023, 10am CT

Hello from the Tamarack Water Alliance! If you are new to our email list we welcome you. Local residents who volunteer with Tamarack Water Alliance compile and send this monthly newsletter to share updates, invitations, and informational articles.

Everyone is invited to attend our open community virtual Zoom meeting on Wednesday, July 12, 2023 at 10am CT. We are moving this July call to the second Wednesday of the month due to the July 4th holiday and the Aitkin Cty Fair where Tamarack Water Alliance will be tabling July 5-8.

Minnesota was recently ranked third in the nation for fishing, highlighting the fishing bounty Minnesotans enjoy. On upcoming call, we will be hearing from a several local anglers about their love of fishing, and their concerns for our local lakes and rivers with Talon Metals proposed nickel sulfide mine. Sulfate pollution contributes to algae blooms on lakes and elevates methyl-mercury contamination in fish, impacting developing brains of infants and children. We welcome your fishing stories and first hand knowledge of fishing on our lakes and rivers.

Download Tamarack Water Alliance fact sheets
<https://www.tamarackwateralliance.org/resources.html>

If you believe nickel-sulfide mining is too risky in Aitkin County, Tamarack Water Alliance has yard signs with this messaging available. Your \$6 donation helps defray costs. Email waters@tamarackwateralliance.org to arrange pickup of your sign.

Volunteer with the Tamarack Water Alliance. Send us an **email** at waters@tamarackwateralliance.org.

Encourage your friends, family and neighbors to sign up for the monthly Tamarack Water Alliance **email newsletter** (<http://eepurl.com/hOboEb>).

Talon Continues to Push Toward An Environmental Disaster

Talon Metals recently submitted their Environmental Assessment Worksheet (EAW) to the state of Minnesota. The EAW provides information about Talon's proposed nickel mine near Tamarack Minnesota. The EAW submission can be found at:

<https://files.dnr.state.mn.us/input/environmentalreview/tamarack-nickel/06212023-talon-nickel-tamarack-mining-project-eaw-form.pdf>

Although the EAW is intended for Talon to address potential environmental effects of its proposed mine, *Talon did not address the key concerns we have expressed for the last two years.* In addition, its EAW raises new concerns. ***It appears that Talon is driving toward a complete environmental disaster as you will see below.***

VENTING

The EAW does state that exhaust air would undergo a filtration BUT ONLY to reduce the amount of suspended dust and particulates. ***"Reducing" does not remove the many toxic materials that will exist in exhaust air throughout mining operations.*** Exhaust air from the underground mine will be laden with sulfide dust created by the daily blasting of high sulfide mineral deposits. We note that the Michigan Eagle Mine monitors for over 20 different toxic substances, all of which could be present in the exhaust air. In addition, Talon confirms that it will be using explosives containing ammonium nitrate. Nitrate is a chemical known to kill infants when the levels are too high in drinking water. Clearly, Talon's proposed air treatment plan is completely inadequate to mitigate the propagation of toxic chemicals into the environment.

WATER TREATMENT

Talon has also not addressed the serious water issues we have raised. It does confirm, consistent with its 2021 Preliminary Economic Analysis (PEA), that up to 2.3 million gallons per day must be pumped out of the mine. However:

- It appears to use a model to estimate this amount based on existing drill holes that may be 100 or more feet apart using. There are no underground mines in Minnesota and we do not know if the model used is valid for the geology in the Tamarack area. How do we know this number is accurate? Where are the studies using the geology in Tamarack to prove this model?
- Additionally, Talon has not accounted for potential increases in mine water as a result of daily blasting in the mine. These blasts can open additional water features that may greatly increase the water that needs to be pumped out of the mine. No studies are provided to address this possibility.
- Talon apparently intends to just dump the mine water into the environment after membrane based filtering. It does not have comprehensive, peer reviewed studies that evaluate the environmental impact of dumping this water into the environment given that the water chemistry of the pumped water will be substantially different than existing ground water and the resulting dumping

- could cause local flooding in the areas impacted.
- Finally, it has nothing to say about the impact of pumping on ground water levels, aquifer levels, lake levels and well levels. We need to see independent peer reviewed studies (e.g. funding a university) to assess the amount of environmental damage that will certainly occur. Here we note that monitoring points at the Michigan Eagle Mine show ground water drops of more than 1.7 feet while only pumping approximately 5% of the water Talon plans to pump.

ROCK STORAGE AREAS

Talon apparently does not intend lining the rock and ore storage areas as this mitigation is not discussed in their EAW. A lining is a critical mitigation since rain will mix with the sulfide dust present in the development rock and soak into the ground and associated aquifers, causing serious acid mine drainage pollution that cannot be removed once present.

In addition, the EAW does not address the issue of dust mitigation from these large rock storage areas. Windblown dust from these areas will likely include sulfide particles which will contaminate the local environment.

BLASTING

Based on operations at the Michigan Eagle mine, Talon may be blasting twice a day, 365 days a year for 10 years. That's 7300 blast events that will be shaking the ground. Keep in mind that the surface in this area is all sand. Exposing buildings to 7300 shake events will cause buildings built on sand to sink. Where are the shake table studies that would show otherwise? Significant local building damage will result but Talon denies that 7300 shake events will have any impact. Did they check? In addition, these shaken / blast events will plague local residents for the life of the mining with blasting that could occur any time day or night.

Talon continues to push toward an environmental disaster with no attempts to study or quantify the serious impacts they intend inflict.



Increase in Nutrients, Mercury, and Methylmercury as a Consequence of Elevated Sulfate Reduction to Sulfide in Experimental Wetland Mesocosms

A. Myrbo, E.B. Swain, N.W. Johnson, D.R. Engstrom, J. Pastor, B. Dewey, P. Monson, J. Brenner, M. Dykhuizen Shore, E.B. Peters

"In the water-saturated soils of wetlands, which are usually anoxic, decomposition of dead plants and other organic matter is greatly retarded by the absence of oxygen. However, the addition of sulfate can allow bacteria that respire sulfate, instead of oxygen, to decompose organic matter that would not otherwise decay. The accelerated decay has multiple consequences that are concerning."

In plain English what this study describes is the bacteria "breathe out" sulfide which is very reactive with metals, making it toxic at higher concentrations. In addition to the release of sulfide, the sulfate-accelerated decomposition of plants releases phosphorus and nitrogen, fertilizing the water body (algae blooms). Decomposition also mobilizes mercury into the surface water. **The sulfide also produces methylmercury, the only form of mercury that contaminates fish.** This study demonstrates that adding sulfate to a wetland can not only produce toxic levels of sulfide but also increase the surface water concentrations of nitrogen, phosphorus, mercury, and methylmercury.

Read the full article here:
Advancing Earth And Space Sciences: JGR Biogeosciences
Vol. 122, Issue 11, November 2017, pp.2769-2785
<https://agupubs.onlinelibrary.wiley.com/doi/10.1002/2017JG003788>

Who We Are

Tamarack Water Alliance (tamarackwateralliance.org) is a group of local residents and landowners working together with others from across Minnesota to protect water and community health from the dangers of sulfide mining near our beloved lakes and wild rice beds, at the headwaters of the Kettle River and in the Mississippi River watershed.

A proposal by a foreign owned mining company to mine nickel and other metals near Tamarack in Aitkin County threatens the health of our communities. This kind of sulfide mining, especially in water-rich environments, has never been done without severe impacts to water and the health of those downstream. Mining here is also a threat to environmental justice and the long-term economic security of nearby native and rural communities.

Review our community slide presentation,
(tamarackwateralliance.org/docs/TamarackMineConcerns-Consolidated.pdf)

Download seven informative flyers:
(<https://tamarackwateralliance.org/resources.html>)

- Talon Mine Risks,
- Geology of Aitkin County,
- High Sulfide Mines Create Acid Mine Drainage,
- Nickel Not Needed for Future EV Batteries,
- Minnesota's Prime Wild Rice Lakes Under Threat,
- Minnesota Regulators Poor Record In Protecting The Environment,
- Eagle Mine Environmental Report & Saving Our Meager Nickel Reserves

We will be sending this monthly newsletter to keep you informed about this project, to share information and opportunities to act, and to invite you to gatherings where you can connect with others who share a passion for clean water and community health.



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