



Tamarack Water Alliance Community Zoom Meeting Wed. February 1, 2023, 10am CT

*Everyone is invited to attend our open community virtual Zoom meeting on Wednesday, February 1, 2023 at 10am CT. This is an opportunity for you to learn about risks to the community of the proposed Talon Metals mine in Aitkin County. February's topic will be *Water is Life - Talon Metals and the Tamarack North Project*. Tom Anderson will be presenting.*

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.

We hope you will share this information with others and keep in touch as we build a community that can protect water and health from the dangers of sulfide mining.

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

Water is Life - Talon Metals and the Tamarack North Project

Protecting Minnesota's land of sky blue waters matters now more than ever. The proposed Talon Metals nickel sulfide mine in Tamarack, MN threatens to destroy the rural vacation land of Aitkin County, home to more than 460 inland lakes, wetlands, and the origin of the Mississippi and St. Croix River watersheds. Clean water is life. It fulfills our need for health, food, leisure, provides a home, acts as a local and global resource, and functions as a transportation route and climate regulator. We must consider the grave risks of sulfide mining to our water rich environment. What follows is an examination of the pumping requirements spelled out by Talon Metals and how that

compares with the Michigan Eagle Mine, an operating nickel sulfide mine Talon seeks to emulate.

TALON WATER PUMPING REQUIREMENTS

Talon Metals, in their 2021 Preliminary Economic Analysis (PEA - referenced at the end of this post), provides an extensive and science based estimate of how much water they need to pump. This analysis is detailed on page 228 of the 2021 PEA. Here Talon reports that the total pumping requirements are based on the following assumptions:

- Groundwater inflows are based on an average inflow of 9.9 gpm per water bearing feature. An average of one water bearing feature per 216 m of drill data has been measured through past logging;
- It is assumed that groundwater inflows can be reduced by 20% by grouting;

We see that Talon’s estimate of pumping requirements is based on their own drill data and measurements of 9.9 gallons / minute per water bearing feature. In addition, they also assume that this inflow is reduced by 20% based on grouting.

They then conclude that,

“The average instantaneous pumping requirements during steady state-mining are between 320 and 370 m³/h ... (which corresponds to 2.03 millions gallons per day to 2.35 million gallons per day).”

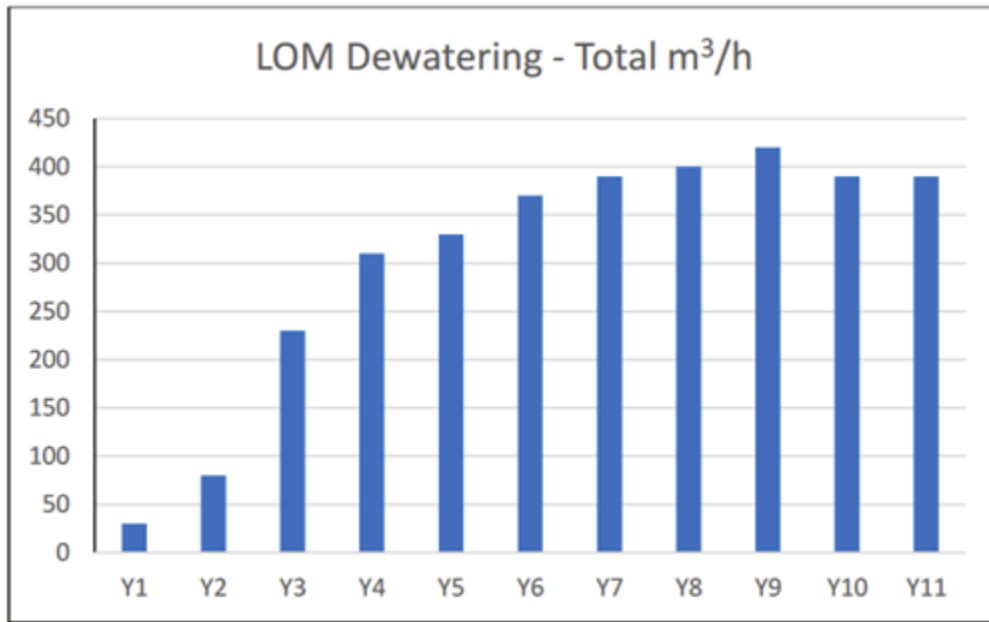


Figure 16-16: Mine Dewatering Requirements

This range of numbers represents an average. From the graph above provided by Talon (on page 228 of the 2021 PEA), pumping levels do reach 2.6 million gallons a

day in year 9. However, these estimates are likely low given the following aspects have not been considered by Talon:

So far, Talon has not committed to filtering all of this water. In addition, they have not said how they might dispose of this quantity of water either. Where does it go? Most importantly, this level of pumping will have significant impact on aquifer levels based on data we have from the 2021 Annual Mining and Reclamation Report to the state of Michigan regarding surface water level monitors. This report indicates that pumping of approximately 89,342 gallons per day (much less than 2 million+ gallons per day) decreased surface water levels by more than 1.7 feet at a number of different points.

MICHIGAN EAGLE MINE REPORT

Given mine service well pumping of approximately 90,000 gallons per day (from page 11 of the referenced report), the Eagle Mine reported (on page 21):

- QAL023B – The mean water level readings from October 2020 – May 2021 and August – September 2021 were a maximum of 1.7 feet (ft) below the calculated minimum background baseline level. The lowest reading was recorded in May 2021. Water levels were not measured at this location from June through September because the water levels fell far enough below the equipment at this monitoring location that it didn't take readings.
- QAL044B – The mean water level readings from January – September 2021 were a maximum of 1.1 ft below the minimum baseline level calculated for this location. The lowest reading was recorded in September 2021.
- QAL065D – The mean water level readings from January – September 2021 were a maximum of 1.1 ft below the minimum baseline level calculated for this location. The lowest water level was recorded in August and September 2021.
- QAL066D – The mean water level readings from October 2020 – September 2021 were a maximum of 2.0 ft below the minimum baseline level calculated for this location. The lowest reading was reported in September 2021

Despite well pumping of less than 5% of that projected in Tamarack, significant drops in surface water were measured, potentially much greater than 2 feet (at QLA023B).

MINE SERVICE WATER

Talon reports in their PEA that a great deal of water is seeping into the mine from "water bearing features". However, a great deal of water is pumped into the mine to support operations. This water is either recycled from existing mine water or is pumped from the aquifer directly. Talon refers to this water as "Mine Service Water" and is discussed on page 226 of the Talon 2021 PEA.

Mine service water is used for a variety of purposes. For example mine service water is required for:

- Diamond drill lubrication for pilot hole drilling and flushing of waste
- Pressure washers to clean the underground equipment
- Dust suppression for the underground crusher and conveyor loading area

- Pressure washers for general dust mitigation
- Shotcrete machine cleaning and sump flushing
- Backfill line flushing
- Removal of loose rock after blasting
- Muck pile wash down
- And other purposes

CONCLUSION

In conclusion, the recent news from Talon reinforces the concerns already expressed. Specifically:

- Talon plans to pump at least 2.6 million gallons of water a day out of our local aquifers. (SOURCE: 2021 PEA pages 227-229). Talon has not committed to filtering this water to clean it but even if filtered, this level of pumping will surely lower water levels substantially in our lakes and wetlands. And where do they put all this water? In addition, these water pumping quantities are likely to be much greater than estimated based on blasting and if the mined out stopes (caverns) are not properly sealed.
- During mining operations, development rock and high sulfide ore storage areas would exist. Although these storage areas will hopefully be lined, we know from the Eagle Mine that such liners leak over time resulting in future contamination of the area.
- Wind will blow the dust from the contaminated rock/ore storage areas, mine ventilation shafts and ore loading and handling operations into the surrounding area. This dust will contaminate the environment and pose human health risks. There is also a risk of dust contamination from rail transport as well.

REFERENCES

1. Talon 2021 Preliminary Economic Analysis (https://talonmetals.com/wp-content/uploads/2021/02/Talon-Tamarack-PEA3_2021.pdf)
 2. 2021 Annual Mining and Reclamation Report, Eagle Mine, LLC (https://www.eaglemine.com/_files/ugd/145c36_8ba8f315c6d04aec933216a522621511.pdf)
 3. November 2022 National Instrument 43-101 Technical Report of the Tamarack North Project – Tamarack, Minnesota (https://talonmetals.com/wp-content/uploads/2022/11/Final_NI43101_Report_Talon_TamarackN_20221102.pdf)
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The Land of Sky Blue Waters Needs One-Time Investments

" Minnesota's iconic lands and waters are famous for their beauty and the immense opportunities they provide for outdoor recreation, from our wilderness areas, city parks and everywhere in between. An ever-growing stream of visitors are enjoying the outdoors: In 2020, an estimated 12.3 million people visited Minnesota state parks and recreation areas, which was a 25 percent increase over 2019. "

...This love for outdoor recreation is key to the state's \$16 billion per year tourism industry, which supports 11 percent of all private-sector jobs and benefits communities of all sizes throughout the state.

...Nature also happens to be one of our most cost-effective yet underappreciated forms of public infrastructure. Grasslands, forests and wetlands act as a natural filter to keep our rivers and lakes clean, providing affordable drinking water. Floodplain habitat and wetlands help protect lives and property from flooding by slowing down and holding water. Expanded parks with vibrant tree canopies temper extreme heat in our cities and towns while providing places of rejuvenation. And nature does all of this while removing massive amounts of carbon from the air.

...When we let it work as intended, nature is a mighty tool to address climate change and improve health and quality of life for Minnesotans."

The Land of Sky Blue Waters Needs One-Time Investments by Kris Larson, Ann Mulholand, Susan Schmidt, MinnPost, January 2022

<https://www.minnpost.com/community-voices/2022/01/the-land-of-sky-blue-water-needs-one-time-investments/>

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,
- 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,
- Responsible Mining
- 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.

