



Tamarack Water Alliance Community Zoom Meeting Wed. January 4, 2023, 10am CT

*Everyone is invited to attend our open community virtual Zoom meeting on Wednesday, January 4, 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. January's topic will be *What's New With 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>).

What's New With Talon Metals and the Tamarack North Project

WHO IS TALON METALS?

Talon is a base metals company headquartered in the British Virgin Islands in a joint venture with Rio Tinto on the high-grade Tamarack Nickel-Copper-Cobalt Project located in central Minnesota.

They are traded on the US Over The Counter market (OTC) as TLOFF with financials shown in US dollars. They are also traded on the Toronto Stock Exchange (TSX) but financials are shown in Canadian dollars which are somewhat different. They do not

meet the financial requirements to be traded on a major stock exchange such as the New York or NASDAQ stock exchanges.

Their stock price as of December 21st is \$0.3325 (about 33 cents per share) and at this price is generally considered in the market as a very high risk "penny" stock.

ORE PROCESSING

On October 19th, 2022, Talon Metals announced that they would move the ore processing and tailings management facility from the Tamarack mine site to an existing industrial brownfield site in Mercer County, North Dakota. This move means that the Hydrometallurgical Plant originally planned for the Tamarack North project moves from the mine site in Tamarack to North Dakota. This move has a number of consequences:

- This moves 150 jobs from Tamarack to North Dakota (see Talon Press release). Although Talon has recently been saying that the mine would employ about 450 people, we note that the Talon 2021 Preliminary Economic Analysis provides a staff estimate of 300 people (see page 237 of the Talon 2021 Preliminary Economic Analysis). Moving 150 jobs to North Dakota means that the Talon Tamarack staff levels may now be in the 150 – 300 range.
- At the Tamarack mine site, the plant is replaced by a huge rail facility since rail will be used to transport the raw ore from Tamarack to North Dakota. According to the 2021 Preliminary Economic Analysis, the Talon mine facilities will extract 1.3 million tonnes of ore per year. This equates to 1.43 million US tons of material per year. Given that a rail ore car can haul 85-100 tons of material (an average of 92.5 tons), that means Talon will be loading at least 43 rail cars with ore each day (365 days a year). This large rail loading facility will create additional toxic dust issues beyond what we have previously noted.
- The Mercer County North Dakota site "pollution zone" where Talon intends to site their processing includes native tribal lands, continuing the legacy of using tribal lands as toxic dumping grounds. Potentially 10's of millions of tons of tailings waste will be dumped at the site, creating a significant toxic waste disposal area.

As you may recall, Talon originally planned to use the tailings mixed with cement to create a cement paste that would be used to fill the mined out stopes (caverns). Doing this helps prevent cave-ins BUT ALSO, the "set" cement mixture likely decreases water seepage to a large extent from these areas. However, by moving all the tailings to North Dakota, how do they fill these mined out stopes in the mine? A couple of options come to mind:

- If Talon does not fill the mined out stopes, these areas become sources of mine water that must be "dewatered" from the mine. The more surface area you leave exposed in the mine, the more water seeps into the mine and its perfectly reasonable to assume that once mining starts the 2.6 million gallons is now a very low end estimate. In reality, real pumping levels may double or more!

- If Talon continues down the plan to fill the stopes a cement paste, where do they get the material? Logically, on average, they might need another 40 or so train car loads of gravel shipped in from a very large set of gravel areas per day, 365 days a week.

UPDATE TO THE PEA

On November 2, 2022, Talon Metals released the document titled "*November 2022 National Instrument 43-101 Technical Report of the Tamarack North Project – Tamarack, Minnesota.*" Talon Metals Corp. retained Golder Associates Ltd. (Golder), as well as Metpro Management Inc. (Metpro) and Barr Engineering Co. (Barr) to prepare an update to the Mineral Resource Estimate (MRE) and a technical report prepared in accordance with Canadian National Instrument (NI) 43-101 for the Tamarack North Project. The purpose of this Technical Report is to support the disclosure of a material change to the mineral resource estimate based on drilling completed since the 2021 technical report entitled "NI 43-101 Technical Report Updated Preliminary Economic Assessment (PEA) #3 of the Tamarack North Project – Tamarack, Minnesota".

This new resource estimate has a number of significant changes since the 2021 PEA. For example:

- The average nickel content including the newly quantified resources has fallen from 1.91% for indicated resources (1.39% total including inferred resources) to 1.73% for indicated resources (1.28% total including inferred resources).
- Total quantified mineral resource has increased from 11 million tonnes of resource (ore) to 17 million tonnes of resource. Thus, this is may be a much bigger mine than originally estimated. Indeed, the life of the proposed mine may not be closer to 17 years rather than 12 years.
- Of the 17 million tonnes of ore, 8.56 million tonnes are classified as "indicated resources". That is, this resource has been verified by drilling. We note however that the 2021 PEA business case indicates that a sufficient business case likely requires at least 12 million tonnes of resource. Likely, Talon will need to quantify with drilling 12-16 million tonnes of resource. This is why Talon recently doubled the number of drilling rigs since they still have significant work to do to meet a bankable business case need.
- In effect, Talon will need to double again the amount of indicated resources.

It is interesting to note that in Talon marketing material, they imply that the Tamarack Talon mine has nickel concentrations in the 5%-10% range. But for official legal documentation on the matter, Talon is saying "oh just kidding", our percent nickel is just 1.73% and falling as they continue to explore. This marketing deception seems inherent in all of their communications. They market one thing to the community but tell investors and market something completely different.

TALON FUNDING

As of November 16th, 2022, (<https://talonmetals.com/talon-metals-announces-closing->

of-37-million-bought-deal-public-offering/) Talon cut a deal to acquire \$37 Million dollars of additional funding for their operations. Note that Talon has no operational revenue so ongoing exploration funding comes from the sale of their stock and thus they have no money at present to build a mine. They must acquire huge investments from other investors to actually mine. With this agreement, Talon has approximately 839,521,237 shares outstanding – a very highly diluted stock.

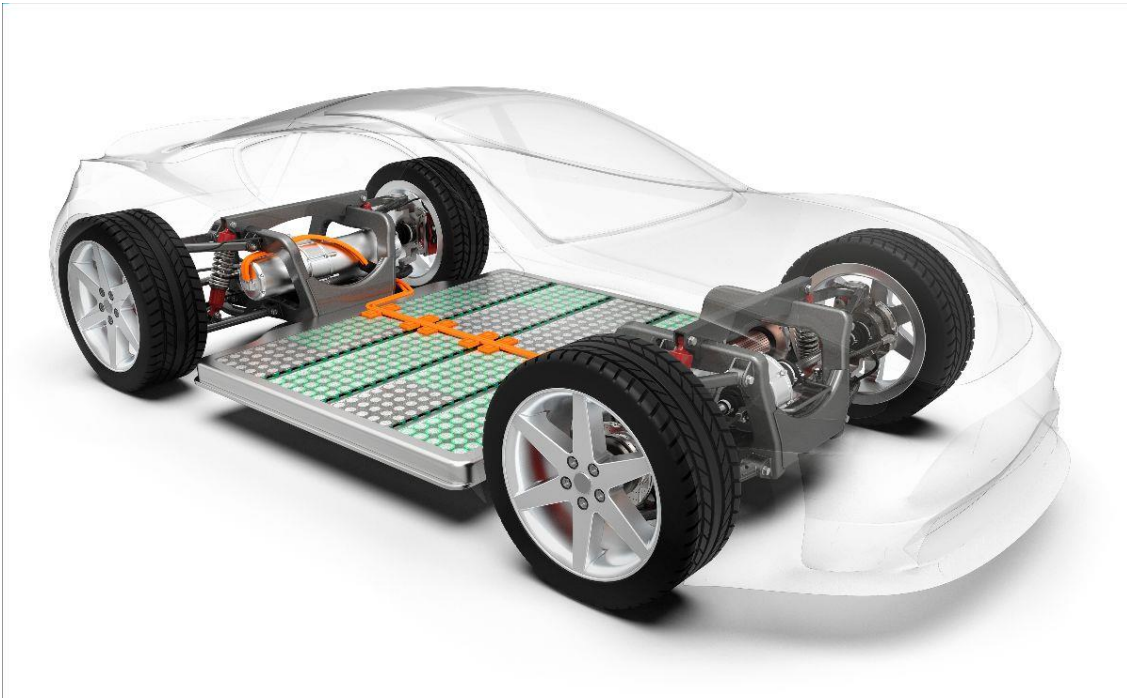
CONCLUSION

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: PEA p. 227). 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? Certainly, even more water would need to be filtered and pumped 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. 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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Why EV Manufacturers Are Switching from NMC (Nickel Magnesium Cobalt) to LFP (Lithium Ferrous Phosphate) Batteries (no nickel or cobalt)

"NMC batteries (Nickel Magnesium Cobalt) provide an energy density of around 270 Wh/kg, which allows an EV to travel upwards of 300 miles (480 km) on a charge, but they come with some baggage. First, nickel and cobalt are mined primarily in Russia and the Congo, respectively... Second, NMC batteries are susceptible to thermal runaway, potentially leading to catastrophic fires. Finally, with a lifespan of around 1000 cycles, NMC batteries will need to be replaced every decade or so—roughly half of an EV's expected lifetime..."

"LFP (Lithium Ferrous Phosphate) batteries have many advantages over NMCs, including an abundance of domestically available materials, lower cost, higher ignition point, and longer lifespan. In 2020, the Journal of the Electrochemical Society published a report showing that LFP batteries outlast their NMC rivals under various real-world conditions.... LFPs also suffer less degradation than NMCs at higher temperatures and at faster charging and discharging rates. That means LFPs are better suited to handle high-performance driving and quick charging..."

"Sometimes a blend of economics, politics, and technology converge into a perfect storm that leads to industry changes. We may be at that point with LFP batteries, as market forces, policy decisions, and engineering enhancements continue to make LFP batteries more attractive to EV manufacturers and buyers. With these factors in mind, LFP may be the fabled "million mile battery" that

we've been anticipating..."

Tom Lombardo, published Sept. 2022
Engineering.com

<https://www.engineering.com/story/why-ev-manufacturers-are-switching-from-nmc-to-lfp-batteries>

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.



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