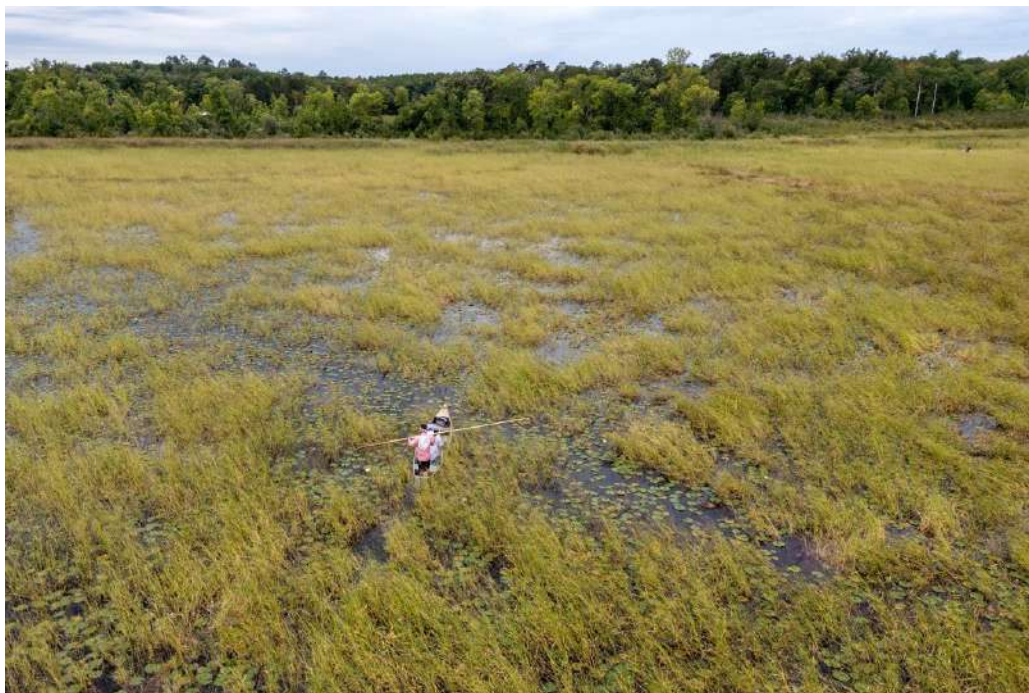


Talon Metals/Rio Tinto Drilling, Sumps, and Cumulative Threats to Tamarack Region Waters and Communities

by Paula Maccabee

WaterLegacy Executive Director & Counsel

(September 3, 2025)



Harvesting wild rice on Big Sandy Lake (Photo/Lorie Shaul)



WaterLegacy's Mission: Protect Minnesota's fresh waters and the communities that rely on them.

WaterLegacy's Story:

- Formed in 2009 by rural Minnesotans concerned about toxic pollution from copper-nickel mining.
- Expanded strategies to protect wild rice, regulatory accountability, environmental health and justice.

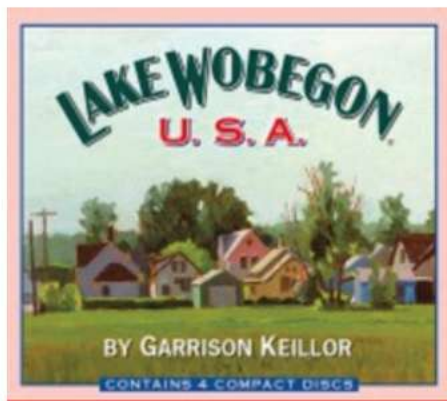
How WaterLegacy Works:

- Science, legal advocacy, organizing.
- Tribal alliance and collaboration.
- Build capacity of community & allies.
- Trust and collaboration.



Minnesota is NOT a “Good Place” to Experiment with Nickel /Sulfide Ore Mining

- Minnesota sulfide ore geology creates an inherent risk of sulfate and toxic metals release. Talon described “massive sulfide mineralization.”
- Minnesota has been a weak regulator of taconite mines, feedlots, and other industries.
- Sulfide ore mines are proposed by international bad actors. Rio Tinto is notorious for bulldozing a 45,000-year-old sacred Indigenous site at an Australian iron mine. Numerous settlements for bribery, political favors.
- Minnesota proposed mines are in wetlands, peatlands, the headwaters of three major watersheds.



Every sulfide ore mine (100%) in a water-rich environment has polluted surface and/or groundwater with acid mine drainage and/or toxic metals.



Reminder: Minnesota Currently has NO Copper-Nickel Mines



PolyMet/Glencore/NewRange Proposal

- Water Pollution Permit – **REVERSED** (2023)
- Permit to Mine – **REVERSED** (2021)
- Wetlands Destruction Permit – **REVOKED** (2023)

Twin Metals/Antofagasta Proposal

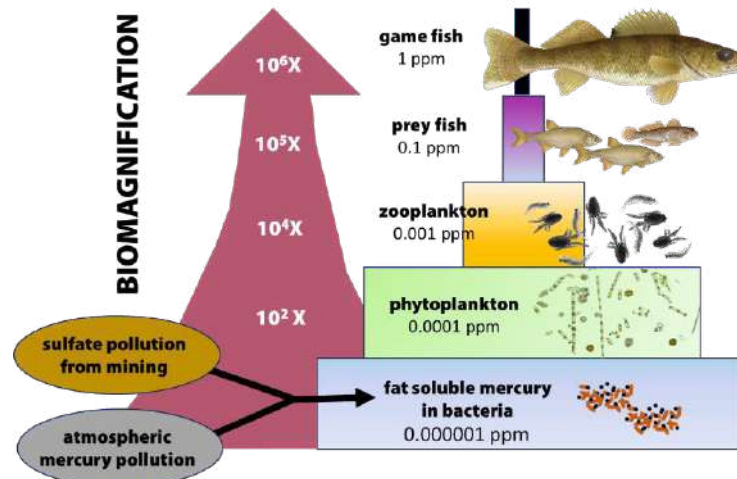
- No environmental review completed.
- No permits issued.



Talon Metals/Rio Tinto Proposal (June 2023)

- No environmental review completed.
- No permits applied for, let alone issued.
- **NOT INEVITABLE**. Depends on science, law, economics, and public civic participation.

Sulfide Mining Threats to Water and Health



Research: high sulfate **doubles** mercury & nutrient release, increases methylmercury by up to **600%**.

Methylmercury in fish: bioaccumulates, concentrates up to **1,000,000 times** in fish at top of food chain.

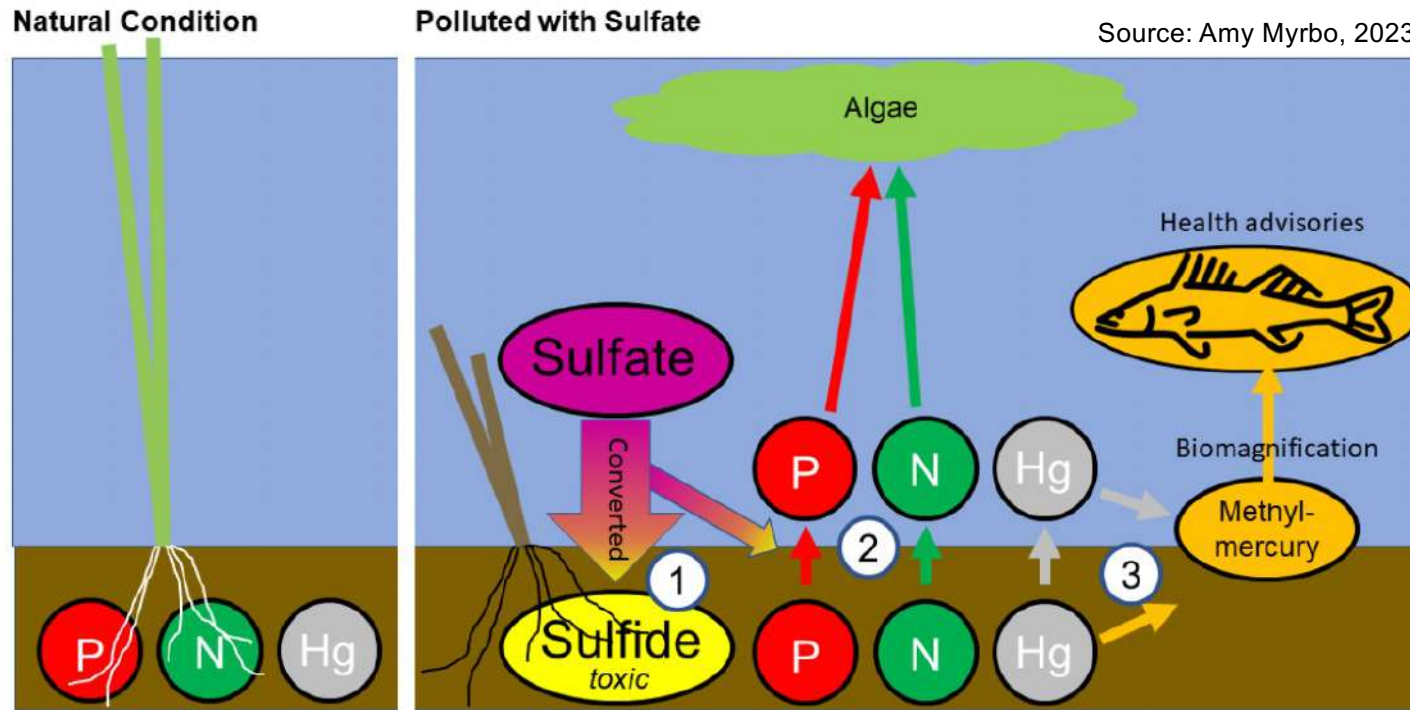
Methylmercury is neurotoxic, harming developing brains of fetuses, infants, children. **1 in 10 newborns** in Minnesota's Lake Superior Region already have unsafe mercury levels in blood.

Manganese and lead in drinking water are also neurotoxins.

Arsenic is a carcinogen.

Neurotoxic harm to infants and children is **not reversible or curable**.

How Does Sulfate Pollution Affect Water Quality, Habitat, Health?



Healthy Waterbody: low oxygen and low sulfide in sediments. Phosphorus (P), Nitrogen (N), Mercury (Hg), and organic matter stay in sediments.

Sulfate Polluted Waterbody: Sulfate is used by sediment bacteria to turn sulfate into toxic sulfide. In the process, organic matter decomposes, P and N are released (algae), and Hg released and methylated to MeHg (magnified in food chain).

Sulfide Mining Threats to Wild Rice, Indigenous Rights



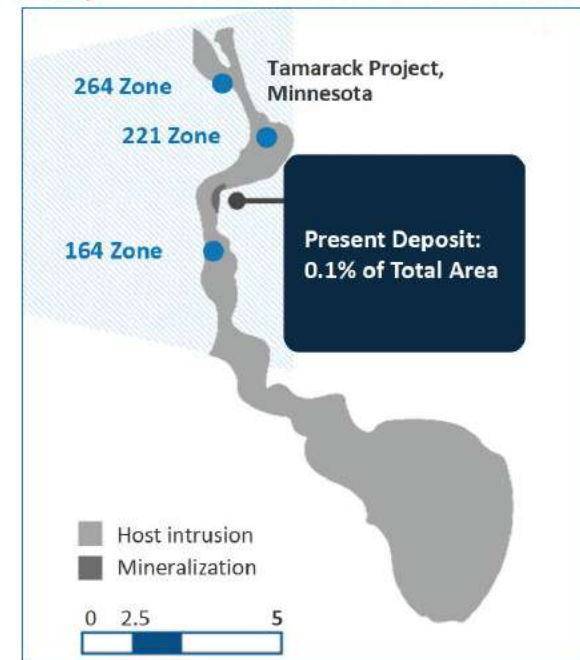
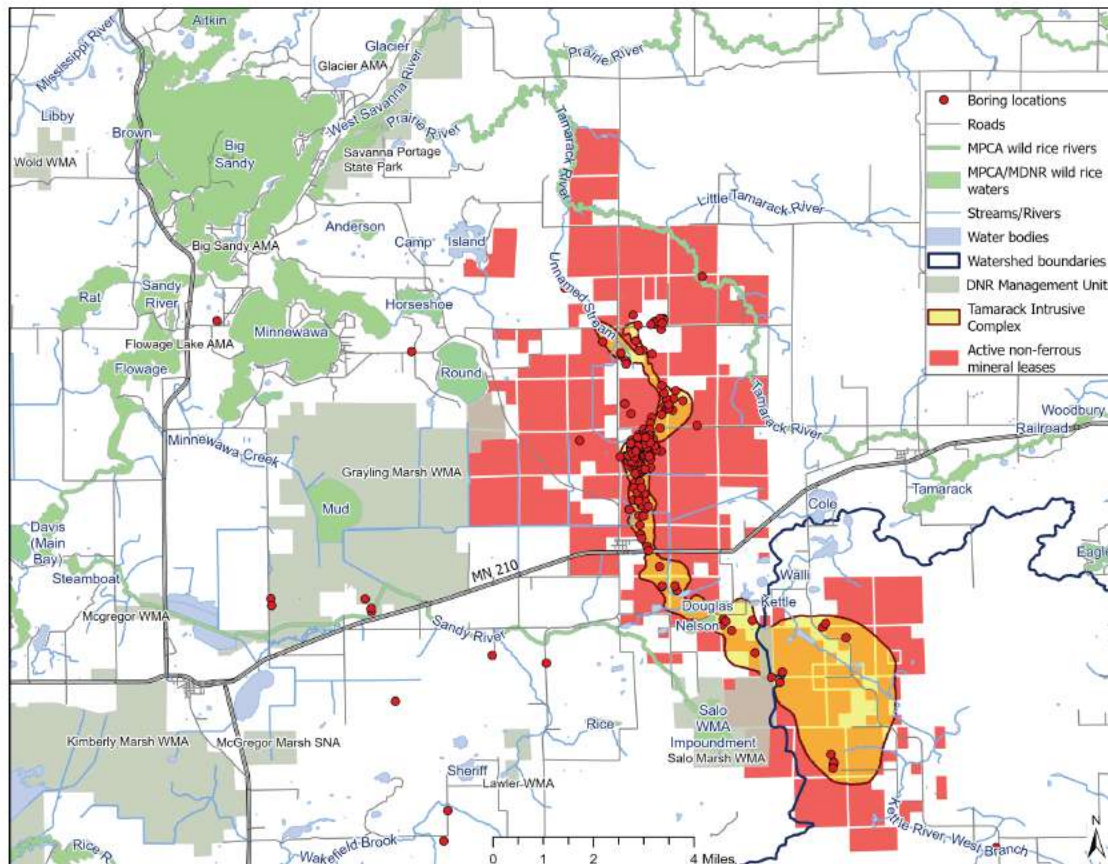
Sulfate-iron plaques on wild rice roots harm nutrient uptake, wild rice seeds.



- **Tamarack Region unique abundance of wild rice: value to fish, waterfowl, wildlife and to tribal sovereign rights, health, and culture.**
- **Talon Metals proposed site closer to Reservation lands and waters than any other mine in Minnesota.**
- **Talon Metals proposed site is in peatlands, wetlands. Perhaps wetter than any existing sulfide ore mine.**

“Manoomin is a way of life for our people here at Mille Lacs. It's our identity. It's literally why we are situated where we're at, because there was a prophecy . . . we will know when we're home when we find the food that grows upon the waters.” *Kelly Applegate, Mille Lacs Band of Ojibwe DNR Commissioner*

Talon/Rio Tinto Mineral Leases, Tamarack Intrusive Complex, Drilling, Proposed Nickel Mine “Project,” Wild Rice Waters



“[T]he Tamarack Intrusive Complex has district-scale potential.” Talon chief exploration and operations officer Brian Goldner (Jan. 2023)

Talon/Rio Tinto Tamarack Region Drilling: Facts & Risks



Talon drill rig (DNR 2023)

Talon/Rio Tinto Drilling Facts

- Talon controls **31,000 acres** of mineral leases.
- From 1990 to 2023, Talon/Rio Tinto drilled **554 borings** in Tamarack Intrusive Complex from **61 to 5,291 feet**. **No publicly available data for 2024 or 2025.**
- In 2023, Talon drilled a total of 82,000 feet into Tamarack deposit due to finding **“massive sulfides” below and south known “massive sulfide mineralization.”**
- There is no available data testing drill cuttings, wastewater or sumps from any Talon/Rio Tinto Tamarack Region exploratory drilling.

Risks of Exploratory Drilling in Sulfide Ore

- Study (2019) at Alaska Pebble sulfide ore mine site: drilling process will **“produce sulfuric acid, which in turn dissolves mineral complexes releasing metals.”**
- Surface waters or sediment at 7 drill sites had **elevated copper, aluminum, arsenic, manganese and/or zinc. (No mine built).**
- From one sump, **copper increased 6-fold** at downgradient wetland spring.
- Recent study (2024) found both drilling additives and cuttings from rock may **“cause soil contamination, or they may penetrate the surface or underground water and cause contamination and threaten the lives of organisms.”**

Talon/Rio Tinto Unlined, Unfenced Sumps for Drill Cuttings & Wastewater



Unlined Sumps: Drill Cutting Waste (Wildflower Group, 2023)

- No Talon/Rio Tinto sumps are lined.
- No regulator has required testing of Talon/Rio Tinto sumps to determine if their chemistry violates surface or groundwater standards.
- Minnesota Rules 7060.0600 prohibit discharge of pollutants into shallow groundwater (“unsaturated zone”).
- Prohibition applied in PolyMet Minnesota Supreme Court case.
- Potential groundwater pollutants include salts (sulfate and/or chloride) and heavy metals, such as manganese, arsenic, copper, and lead.

Talon/Rio Tinto Sumps in Wetlands, Potential Effects on Wildlife



*Unlined sump in wetlands,
swamp mats (DNR 2022)*



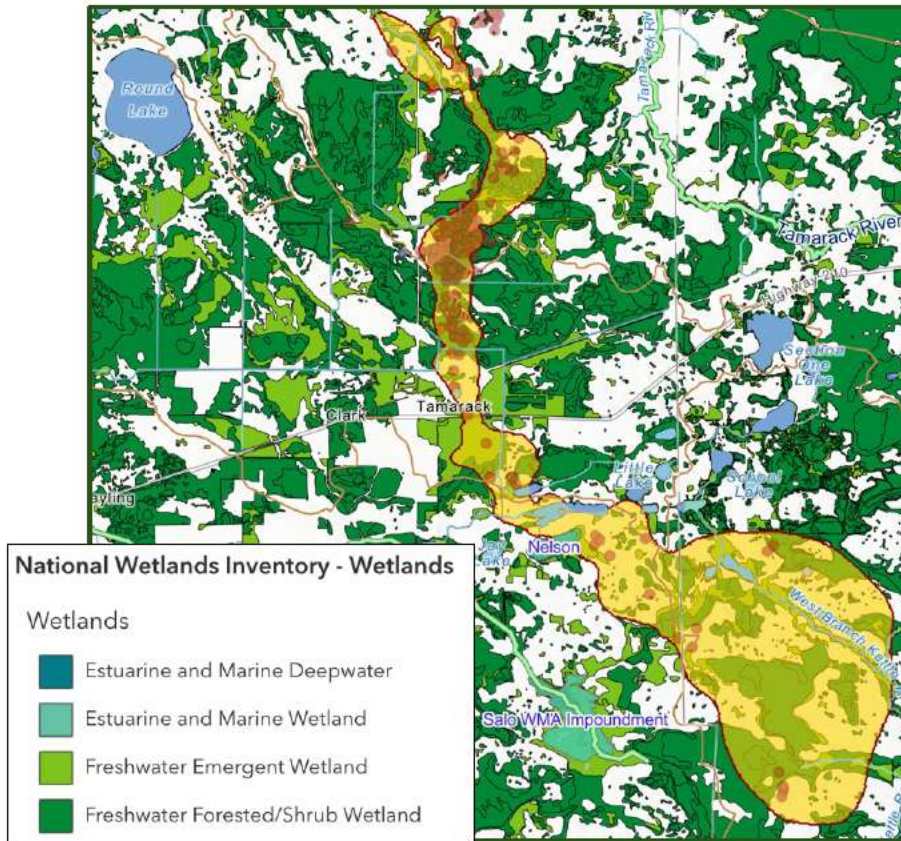
*Deer in sump (DNR 2021 contrast
increased)*



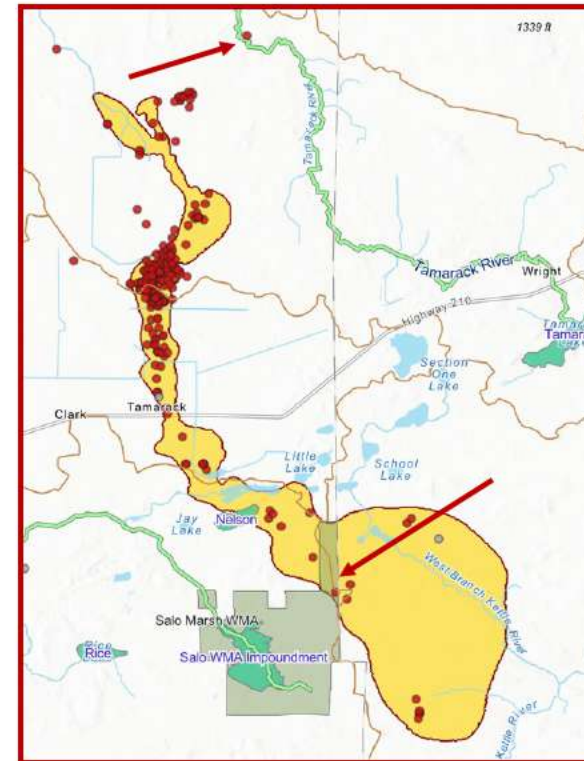
Unlined sump in wetlands, mat corner (DNR 2024)

Presence of swamp mats indicate sumps are located in and near wetlands. Based on Talon data, one 5,000-foot borehole could generate 82,000 gallons of cutting waste, about 4 times the volume of a backyard swimming pool.

Talon/Rio Tinto Drilling in Wetlands, Sensitive Features



Drilling also includes sites with High Biodiversity Significance



Arrows show Tamarack River wild rice waters, Salo Marsh Wildlife Management Area. Past and planned "wedge" drilling.

Talon/Rio Tinto Drilling in Open Water, Tamarack Bogs



Borings in open water (DNR 2021)



Borings in open water, tamarack bog (DNR 2021)

DNR inspections log notes “floating bog here” and “peat” at several drill sites.

Talon/Rio Tinto Drilling in Wet Conditions: Damage and Potential Artesian Conditions



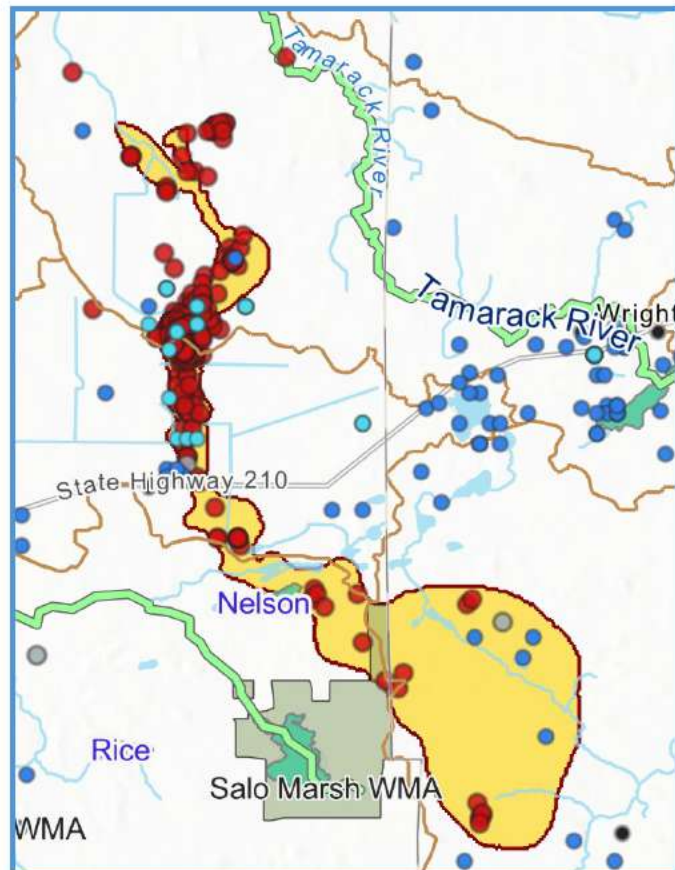
Rutting and damage (DNR April 2023)

Unfrozen in winter:
DNR 2021-02-25
(right). Pooling water
at borehole: DNR
2024-05-01 (below).



Artesian conditions—
when water wells up
or pools around
boreholes—increase
pollution risks.

Talon/Rio Tinto Drilling Proximity to Domestic Wells: Chemistry Data Not Available



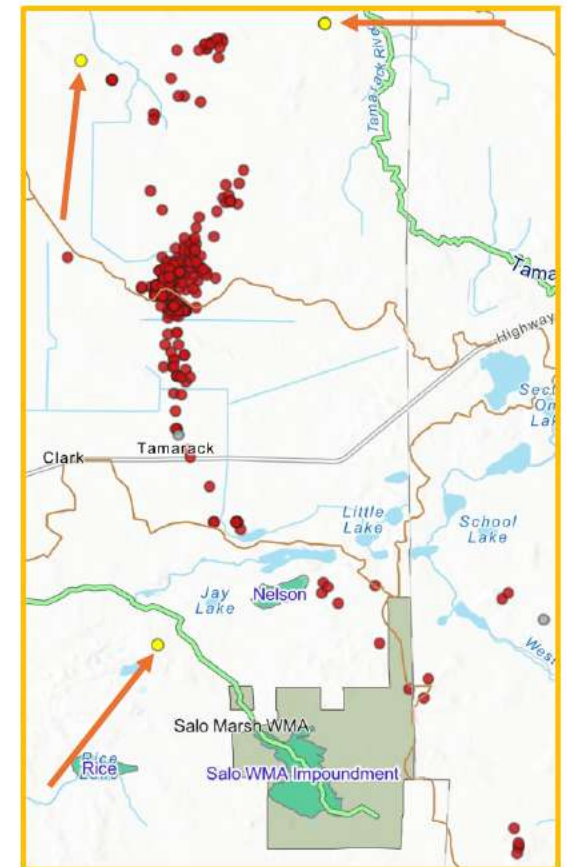
MWI Wells (approximate locations)

- Domestic
- Monitoring

Water Chemistry Aitkin County (DNR/MDH data)



Map layers for exploratory drilling and wells overlap in several places. DNR/MDH water chemistry data are not near borings.



Talon/Rio Tinto Drilling – Open, Buried & Broken Pipes



- Minnesota Rules require proper sealing of all borings.
- Temporarily sealed borings must be at least 1 foot above ground surface and 5 feet above flood levels.



DNR images of boring pipes:
2022 (open, left); 2023 (buried,
center); and 2024 (broken, right).



Petition for Environmental Review of Talon/Rio Tinto Exploratory Drilling (Environmental Assessment Worksheet)

What is the Petition for EAW?

- EAW is an initial assessment of potential for significant environmental effects.
- Petition for EAW submitted on Earth Day 2025, by WaterLegacy and 323 Minnesota residents and/or property owners, joined by Tamarack Water Alliance.

Why was a Petition for EAW filed?

- Address **cumulative impacts** of drilling, sumps, inadequate sealing on water, wild rice, wetlands, aquatic life, wildlife, human health.
- Lack of testing, regulatory controls, and rule compliance for drilling throughout the Tamarack Intrusive Complex region has **potential for adverse environmental effects** on water, ecosystems, health.

What is the Process for the EAW?

- DNR has never required an EAW for exploratory drilling before.
- 2013 WaterLegacy Metallic Leases case, “DNR has a duty to determine whether environmental review is required before approving exploration plans.” DNR did not do so.
- There is no penalty for DNR to take longer than the 30 days in rules to decide if EAW is required.



Talon/Rio Tinto Proposed Tamarack Nickel Mine Environmental Review

Federal government subsidies:

\$114.8 million in October 2022

(plant);

\$20.6 million in September 2023

(drilling); \$2.5 million December 2024
(R&D).

Talon/Rio Tinto first draft EAW: June 2023.

Proposal to mine 225 acres.

No scoping EAW.

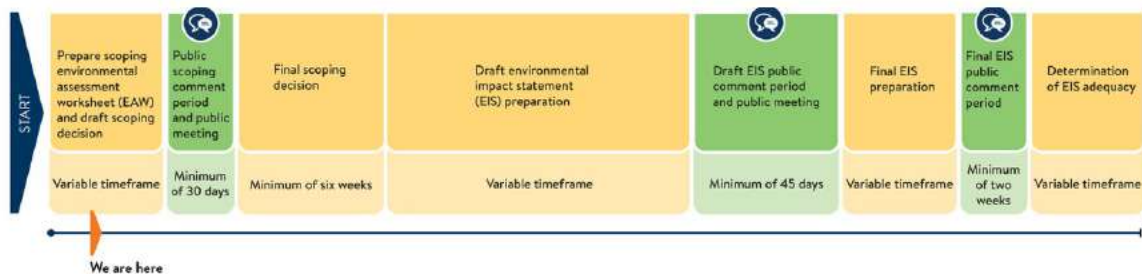
No reserves or feasibility.

Petition to ask the Governor
and DNR to require the
“Whole Truth” in
Talon/Rio Tinto
Environmental Review:

**Full and cumulative impacts
of mining the entire
“district scale” Tamarack
mineral intrusion.**



**WHAT WOULD
TALON METALS
MINING
THREATEN?**



DNR website Sept 1, 2025



How Do Minnesotans Protect
Our Waters & Communities?



- Sign up at www.WaterLegacy.org to join our movement to protect water, health, and justice.
- Please volunteer and donate what you can.
- **TODAY:** Sign the petition to require the Whole Truth in Talon Metals environmental review.

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