Conservation Council *of* New Brunswick
Conseil de conservation *du* Nouveau-Brunswick

February 2026

The Sisson Mine: Health impacts and public responsibility

What is the Sisson Mine?

The Sisson Mine is a large open-pit tungsten and molybdenum mine proposed northwest of Fredericton, in the upper Nashwaak and Wolastoq (Saint John River) watershed.[1] New Brunswickers rely on this water for drinking, fishing, recreation, and cultural use.

Although the mine is proposed to operate for about 27[2] years, health risks associated with contamination can persist for decades or generations after mining activity ends.[3,4]

Who controls the mine — and who bears the environmental risk

The project is controlled by Northcliff Resources,[5] which is majority-owned by Todd Corporation of New Zealand, owned by one of that country's wealthiest families.[6,7]

If contamination affects people decades from now:

- Local communities bear the health impacts
- New Brunswick's public health system bears the cost
- The companies benefiting from the mine may no longer be present

This creates a clear gap between private profit and long-term public health responsibility.

What remains when the mine closes

Even if the mine operates for fewer than 27 years, the physical footprint remains: [4]

- **Open pit:** About 145 hectares (about 200 soccer fields)[2]
- **Pit depth:** About 370 metres (deeper than the CN Tower is tall)[2]
- **Tailings storage facility area:** About 751–785 hectares (about 1,400–1,500 soccer fields; larger than many New Brunswick towns)[2]
- **Tailings dam**: About eight kilometres long and 90 metres high (almost 16 times the length and twice the height of the Mactaquac Dam)[2]
- **Total industrial footprint:** About 1,253 hectares (12.5 km², about the same size as Fredericton).[2]

Large-scale mine sites generate more waste, require long-term containment, and create more pathways for potential human exposure.

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1. Water contamination is a direct health risk

Hard-rock metal mining can release pollutants into rivers and lakes used for fishing and recreation, as well as into wells and other drinking water sources. [8,9,10]

Waste from Sisson Mine will include: [2,11]

- Toxic heavy metals such as arsenic
- Acidic drainage, which dissolves and mobilizes metals
- Dissolved salts and processing residues, which alter water chemistry

Long-term exposure to these substances has been linked to neurological, developmental, cardiovascular, kidney, and cancer-related health effects.[9,10]

Contaminants can enter surface water and groundwater through seepage from tailings storage areas, runoff from waste rock, and chemical reactions in exposed rock. Once released, they can move downstream, affecting drinking water, private wells, and food sources.

Mining waste from Sisson mining operations would be stored in tailings ponds.[2]

- The tailings area would cover about 751–785 hectares. That is:
  → larger than many New Brunswick towns
  → roughly 1,400–1,500 soccer fields
- It would hold millions of tonnes of wet mining waste that would need to be treated before it is released into the Nashwaak watershed.
- The waste would be contained by large earth dams

Tailings ponds must be managed forever and are always risky. They do not become safe when mining ends.[12]

Around the world, tailings facilities have:

- Leaked slowly, poisoning water over time.
- Failed suddenly, releasing polluted water and sludge downstream.

When failures occur, rivers are polluted for kilometres, fish habitat is wiped out, and communities lose access to clean water, fishing, and recreation for years or decades.

Canada has one of the worst records for tailings failures[13], including:

- **Mount Polley, B.C.**, where 24 million cubic metres of mine waste were released.[13]
- **Mount Pleasant, N.B.**, where heavy rainfall in 1998 caused a tailings dam failure, causing effluent to flow into Piskahegan Stream. [14]

Once contamination occurs, exposure can continue for generations.

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2. Long-term exposure increases health care demand

Exposure to contaminated water or other environmental pollutants contributes to:

- Developmental effects in children
- Neurological and cognitive impacts
- Chronic illnesses requiring long-term care

As a result:

- Doctor visits increase
- Demand for hospital and specialist care rises
- Long-term treatment costs grow

Because contamination pathways can persist long after mining ends, health risks and health care costs can continue for decades, even when the mine is no longer operating.

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3. Air pollution creates more long-term health risks

Large open-pit metal mines generate significant air pollution during construction and operation.

Key air quality concerns at the Sisson Mine[2,11,15] include:

- Fine particulate matter ($PM_{2.5}$ and PM_{10})
- Metal-containing dust
- Nitrogen oxides (NOx), sulphur dioxide (SO2), hydrogen sulphide (H2S), ammonia (NH3)

Exposure to these air pollutants is strongly associated with respiratory disease, cardiovascular illness, and increased mortality, particularly among children, seniors, and people with pre-existing conditions. [16,17,18]

Recently, there has been increasing evidence that exposure to air pollution is linked to neurodegenerative diseases, including amyotrophic lateral sclerosis (ALS).[19] A recent study linked long-term exposure to sulphur dioxide (SO_2) to an increased risk of amyotrophic ALS in New Brunswick, even at relatively low concentrations.[20]

These impacts place additional, long-term strain on public health services.[4,16]

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4. Stress and uncertainty affect mental health

Living near a large industrial waste site can cause:

- Anxiety about water safety
- Fear of spills, leaks, or dam failure
- Loss of trust in institutions

Chronic stress is linked to:

- Mental health conditions
- Increased use of health services
- Reduced quality of life

These impacts affect entire families and communities.

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5. Health care costs increase — and taxpayers pay

When environmental contamination affects health:

- Medical testing and monitoring increase
- Chronic conditions require ongoing treatment
- Public health investigations and advisories are needed

These are measurable costs [4] paid through:

- Provincial health budgets
- Public health agencies
- Taxpayer-funded services

It is estimated that environmental contamination costs public health systems in Canada billions of dollars. [4]

Just like water treatment, health care costs do not stop when mining stops.

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6. Vulnerable populations bear the greatest burden

Health risks are not shared equally. [16,17]

Greater impacts are felt by:

- Children and pregnant people
- Seniors
- People relying on wells or local food sources
- Rural communities with fewer health services

These populations are often least able to absorb added health and financial stress.

Bottom line

The Sisson Mine puts people's health at risk by:

- Threatening clean water
- Creating long-term exposure pathways
- Increasing pressure on the public health-care system

Health impacts are not abstract. They show up in:

- Doctor’s offices
- Hospitals
- Public health budgets

When pollution affects health, taxpayers pay, often for decades.

No short-term economic benefit justifies the long-term health risks to New Brunswick communities.

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