McDonald, David S

From: Geldenhuys MD, Laurette
Sent: March 13, 2025 10:28 AM
To: Office of the Legislative Counsel
Cc: nancy covington; Tynette Deveaux
Subject: Submissions from CAPE NS Re Bill 6
Attachments: CAPE NS submission on Bill 6 - Dr. Laurette Geldenhuys.pdf; CAPE NS submission Bill 6 - Dr. Nancy Covington.pdf

Hello,

In follow-up to our chat this morning, I submit two presentations on behalf of the Nova Scotia Regional Committee of the Canadian Association of Physicians for the Environment (CAPE NS), one to be presented by me at 1:25 PM, and another by Dr. Nancy Covington.

You may have received copies already, but I re-send just in case.

Kind regards,
Laurette

Laurette Geldenhuys
Chair, CAPE NS

ACME Nouvelle-Écosse
Association canadienne des médecins pour l'environnement

CAPE Nova Scotia
Canadian Association of Physicians for the Environment

March 3, 2025

Submission (and presentation) by Dr. Laurette Geldenhuys to the Standing Committee on Public Bills concerning Bill 6: An Act Respecting Agriculture, Energy and Natural Resources

Protecting Nova Scotia's Health: A Physician's Perspective on Fracking and Uranium Mining

Good morning, honourable members of the legislature, I'm Dr. Laurette Geldenhuys, and I work as a pathologist at the QEII Health Sciences Centre. I served as Division Head and Service Chief of Anatomical Pathology for 10 years. I'm also a past president of the Canadian Association of Pathologists.

I'm here representing the Canadian Association of Physicians for the Environment. CAPE is a non-partisan, physician-led organization with over 36,000 supporters across the country. Here in Nova Scotia, CAPE represents more than 100 physicians and other healthcare professionals working in the province.

I speak before you today not just as a pathologist and representative of CAPE, but as a Nova Scotian deeply concerned about the health and well-being of our communities.

I want to begin by acknowledging the challenging situation our government faces. The pressures of US tariffs, healthcare funding gaps, and the need to ensure prosperity for all Nova Scotians are significant burdens. As physicians, we regularly face crises and must make life-and-death decisions. We're guided by our commitment to serve the best interests of our patients, and to do no harm. Today, I'm calling upon you, our government, not to try to solve one crisis by creating another.

The Hidden Costs of Fracking and Uranium Mining

While the potential economic benefits of fracking and uranium mining may seem attractive, especially in these trying times, we must consider the hidden costs – particularly to human health and our environment.

Fracking: A Threat to Public Health

Recent medical evidence paints a disturbing picture of the health impacts associated with fracking:

1. Pregnant women and infants near fracking sites face higher risks of preterm births, low birth weights, and congenital defects.
2. Children living close to these operations have 2-3 times higher odds of developing acute lymphoblastic leukemia and increased rates of asthma.
3. Adults in these areas experience higher incidences of cardiovascular and respiratory diseases, as well as increased overall mortality rates.

Many of the chemicals used in fracking are known carcinogens and endocrine disruptors. Groundwater contamination from these substances can persist for decades, affecting drinking water supplies and, consequently, human health.

Uranium Mining: A Radioactive Legacy

Uranium mining presents its own set of grave health concerns:

1. Miners and nearby residents face elevated risks of lung cancer and other respiratory diseases due to radiation exposure.
2. The long-term environmental impact is severe, leaving behind radioactive waste with a half-life of tens of thousands of years.
3. Even with modern safety practices, the risks of radon gas exposure, radioactive dust, and potential water contamination remain significant.

Vulnerable Populations at Greatest Risk

It's crucial to understand that these health impacts don't affect all Nova Scotians equally. The most vulnerable among us bear the heaviest burden:

- Children, whose developing bodies are more susceptible to environmental toxins
- Pregnant women and their unborn children
- The elderly, who often have compromised immune systems
- Indigenous and African Nova Scotian communities, who historically have faced disproportionate environmental health risks

- Rural and low-income communities, who may lack the resources to mitigate these health impacts

Long-Term Environmental Consequences

Beyond immediate health concerns, we must consider the long-term environmental impacts:

1. Fracking can lead to long-lasting groundwater contamination, affecting our drinking water for generations.
2. Uranium mining leaves behind radioactive tailings that require perpetual management, posing ongoing risks to surrounding communities.
3. Both industries contribute significantly to greenhouse gas emissions, exacerbating climate change – which the medical journal *The Lancet* has identified as the greatest global health threat of the 21st century.

Economic Considerations: Short-Term Gains vs. Long-Term Costs

While the economic allure of these industries is understandable, we must weigh short-term gains against long-term costs:

1. The boom-and-bust cycle of resource extraction offers only temporary economic benefits.
2. The health costs – in terms of increased healthcare burden and lost productivity – could far outweigh any economic gains.
3. Investing in sustainable industries like clean renewable energy could create more jobs per dollar invested while protecting our environment and health.

A Call to Action: Protecting Nova Scotia's Future

As physicians, we're already seeing the health effects of environmental degradation and climate change in our communities. We simply cannot afford any further strain on our healthcare system.

Therefore, I urge this government to:

1. Maintain and strengthen existing restrictions on fracking and uranium mining.
2. Invest in community-supported clean renewable energy and green infrastructure as a path to sustainable economic growth.
3. Require comprehensive health impact assessments for any proposed resource extraction projects.
4. Prioritize the protection of drinking water sources and ecologically sensitive areas.

5. Respect the United Nations Declaration on the Rights of Indigenous Peoples and engage in meaningful consultation with Mi'kmaw communities.

In conclusion, I ask you to trust the voices of physicians and healthcare providers who will be tasked with caring for those harmed if these industries are permitted to operate in our beautiful province. We must not be swayed by the promises of industries and corporations whose primary motive is profit.

By maintaining our commitment to environmental protection while pursuing sustainable economic development, Nova Scotia can lead the way in innovative solutions that preserve the health, environmental, and economic legacy we wish to leave for future generations.

Thank you for your time and consideration. I'm happy to answer any questions you may have.

Laurette Geldenhuys, MBBCH FFPATH MMED FRCPC MAEd
on behalf of CAPE Nova Scotia

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Canadian Association of Physicians for the Environment

March 3, 2025

Submission by Dr. Nancy Covington to the Standing Committee on Public Bills concerning Bill 6: An Act Respecting Agriculture, Energy and Natural Resources

Good morning, honourable members of the Legislature. Thank you for the opportunity to speak with you today. I am Dr. Nancy Covington, a retired family physician, a grandmother, and a member of the Nova Scotia committee of the Canadian Association of Physicians for the Environment (CAPE NS).

I was involved in the work that led to Nova Scotia's 2009 ban on uranium mining and exploration. This ban grew out of the long-standing moratorium, and was the result of extensive research and public engagement. In the end, it garnered support from all political parties, the medical society, and many citizen groups.

Shortly after this, mining companies started exploring for uranium near Sept-Îles in Quebec. When petitions to halt the exploration were ignored, 23 doctors in the community publicly announced that they were prepared to resign en masse and leave town if the project moved forward. They stated that the threat to their water supply posed too much risk to their families and communities. With 23 doctors representing a third of the area's total physicians, their stance had significant weight. As a result, in 2013, Quebec imposed a moratorium on uranium mining, becoming the third province to take this step, following British Columbia and Nova Scotia.

It's disheartening that today, Nova Scotia's ban on uranium mining is being challenged. However, I welcome the opportunity to refresh our thinking on this critical issue.

Even the act of exploring for uranium with boreholes can release radon. Radon is a radioactive gas arising from uranium underground. Radon has a half life of 3.8 days. As it decays, it emits radioactive particles which, if inhaled or ingested, can damage our DNA and other cellular components, potentially leading to cancer. Radon and its eight decay products are all classified as carcinogens.

The decay chain continues with each new radioactive product, having the potential to attach itself by electrostatic charge to dust particles. These can get blown around, washed away into ponds or wells, or settle on vegetation and crops. Of interest, one of the elements in this decay chain is Polonium 210, which was the substance slipped into a teacup that killed Litvinenko by radiation poisoning in 2006. (Litvinenko was a double agent spy in the UK). Only 10 micrograms of Polonium was needed to kill him; his body was so radioactive it had to be buried in a lead coffin.

Uranium mining is typically done through open-pit or underground methods, and occasionally by leaching. In Saskatchewan, uranium concentrations are high—up to 20%—so the mining is often carried out by robots due to the extreme danger to workers. While no leaching has been done in Saskatchewan so far, it has been used in Wyoming, where it resulted in major contamination of an aquifer. More commonly, uranium is found in lower concentrations, which requires crushing the rock to extract the ore, leaving piles of radioactively contaminated rock exposed to the weather. Tailing ponds created to contain the waste do breach, as happened in Elliot Lake.

Milling of the ore is usually done on site to reduce transportation costs. The resulting yellowcake is transported to Blind River (top of Lake Huron) for refining, and then sent to a "Conversion Facility" in Port Hope (Cameco) where it is made into uranium hexafluoride and some pellets made for Bruce Power. Every step in the process risks more scatter of the radioactive laden dust particles.

Most mining has historically taken place in remote, sparsely populated areas such as northern Saskatchewan. One study showed that lichens close to uranium mining sites are sufficiently contaminated by radioactivity that caribou that eat the lichens become contaminated, thus entering the food chain. This study calculated the additional risks of cancer for people eating different amounts of this traditional meat. Other studies show fish in the area have heavy metal concentrations. Watersheds near mines in both Saskatchewan and Ontario remain contaminated.

Saskatchewan is 12 times as large as Nova Scotia with approximately the same size population. Most Saskatchewanians live in the south and mines are in the north. Nova Scotia is the second most densely populated province in Canada with 40% of people dependent on wells. This means that a uranium mine anywhere in Nova Scotia would affect most of us – as would uranium exploration.

After the mine is closed, the tailings site with radioactive remnants and other toxic heavy metals would require monitoring for an indefinite period of time. The responsibility and cost of this care would be the province's. Another long-term cost would be health care costs for delayed onset cancers.

Radon gas is the second leading cause of lung cancer after smoking and is why measuring radon in our basements is advised and remedial action recommended over a certain level.

Many of our buildings, including schools, have readings above this level, which is why an industry has developed in the province to help homeowners do remediation.

Uranium is used for either nuclear power or nuclear weapons. A minuscule amount ends up as radioisotopes for medical use. Most medical isotopes can be made in a cyclotron without using radioactive material. Large nuclear power plants like Bruce Power are not needed to make these tiny amounts.

The Canadian Nuclear Safety Commission regulates the mining industry. Of note, permissible levels of radon in Canada – that is, what the industry is allowed to release into the environment – are twice as high as many other countries and twice as high as what the World Health Organization recommends.

Permissible levels are derived from data from survivors of Hiroshima and Nagasaki. These levels are based on "Reference Man," ignoring the fact that low level ionizing radiation causes disproportionate harm to women and children.

The bottom line is that even with newer mining techniques, uranium mining and exploration will negatively affect our health and the environment in much of Nova Scotia for a long time. This will further strain the health care system and increase costs.

Lastly, after uranium is used in a nuclear power plant, it's transformed into waste that is much more radioactive than the original uranium. It's so radioactive, in fact, that it has to be kept out of the biosphere for hundreds of thousands of years. Nobody in the world has figured out how. This toxic legacy will haunt future generations.

On behalf of the Canadian Association of Physicians for the Environment, I respectfully call upon the government to maintain Nova Scotia's uranium mining ban.

For our health and for the environment, leave uranium in the ground.

Nancy Covington, MD, BSc Physics
on behalf of Canadian Association of Physicians for the Environment Nova Scotia
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Recommended resources
https://www.pembina.org/reports/ClearingAir_UraniumMining.pdf
https://www.ippnwcanada.ca/medical-isotopes

For more information, contact:

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