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**Written submission from
Chris Houston**

**Mémoire de
Chris Houston**

**Regulatory Oversight Report for
Uranium Mines, Mills, Historic and
Decommissioned Sites in Canada: 2023**

**Rapport de surveillance réglementaire
des mines et usines de concentration
d'uranium et des sites historiques et
déclassés au Canada : 2023**

Commission Meeting

Réunion de la Commission

January 29, 2025

29 janvier 2025

January 24, 2025

Canadian Nuclear Safety Commission
280 Slater Street,
Station B Ottawa,
ON, K1P 5S9

Dear President Tremblay and Commission Members,

**Re: Public Commission Proceedings Participation Request
ID: 0edd7949-4210-4161-9337-93f3ffb95ac4**

Following my request to make a submission on October 10, 2024 and noting CNSC's apology, for not accepting my request sooner, which was received only yesterday, I hereby submit my written submission about the *Uranium Mines and Mills Regulatory Oversight Report*.

The short time that I have been given to prepare this document has not left me able to collaborate with others, maximise my clarity or engage with a third party for quality control, and I therefore ask readers for forgiveness if you find ambiguity, errors or omissions. I would be delighted to receive any requests for clarification.

Executive Summary

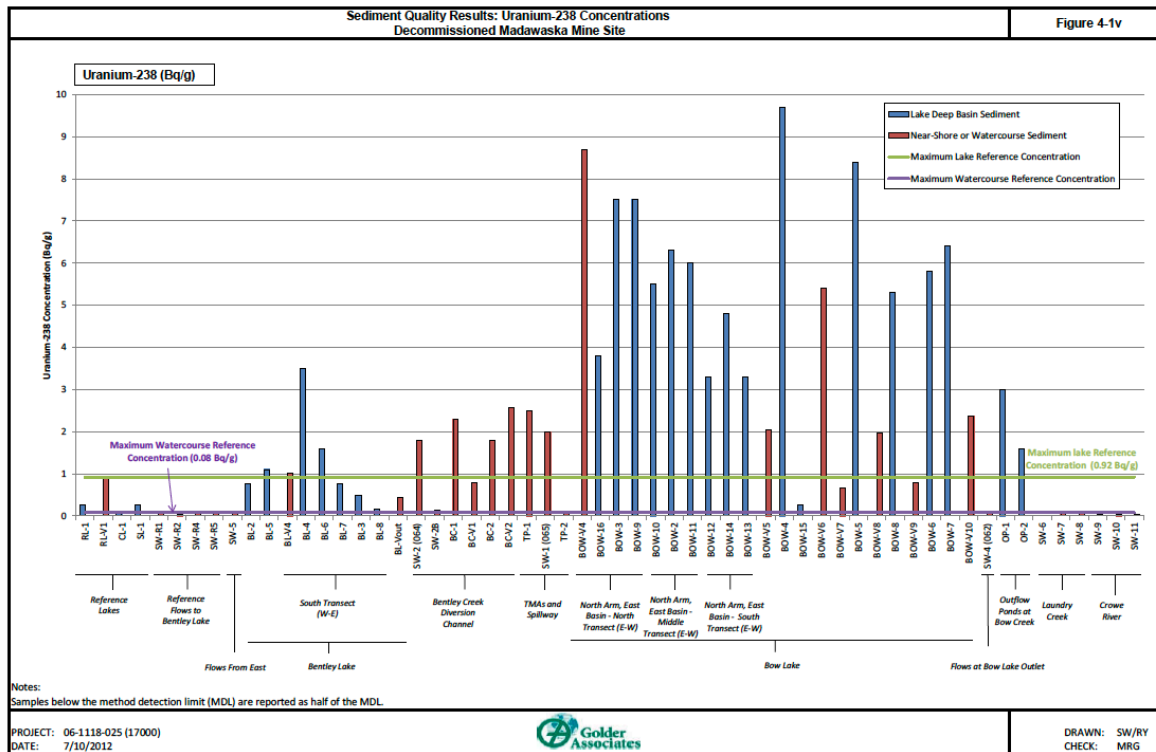
Uranium from the improperly decommissioned Madawaska Mine is present in water and sediment at quantities way above quality objectives. Despite this, it is difficult for the public to understand the risks and recent developments at the mine. This is partly due to the binary classification of mines as active or decommissioned, with no middle classification for improperly decommissioned mines. On page 5 of this submission, I request improved transparency in the form of regular reporting, especially about the recent decommissioning efforts.

Background

I live near the Madawaska former uranium mine near Bancroft, ON.

In 2012, uranium-238 concentrations in sediments of Bow Lake at sampling point BOW-V4 were measured at over 8 Bq/g. That is around 100 times the Maximum Watercourse Reference Concentration of 0.08 Bq/g and over eight times the Maximum Lake Reference Concentration of 0.92 Bq/g. Sediments in the deep basin were higher¹(see Figure 4-1v, overleaf).

¹ Golder Associates, 2012 (licensee's contractor) *Sediment Quality Results: Uranium 238 Concentrations*, Figure 4-1v.



2003 reporting from the Ministry of the Environment states “Levels of uranium and Ra-226 were observed in the surficial sediments at 17-times and 405-times (respectively) above background.”²

As per page 17 of report *2012 Groundwater Monitoring - Former Mine Site Area* by Golder Associates (the licensee's contractor's) “Uranium concentrations in the spring and late summer 2012 were over 100 times greater than the PWQO [Provincial Water Quality Objective] (0.005 mg/L): BH06-01A (1.4, 1.5 mg/L) and BH06-02A (3.4, 4.8 mg/L).” 4.8mg/L represents 960 times the PWQO.

The same report notes that “concentrations more than ten times the PWQO” is an unusual choice of words when 1.1 mg/L is 220 times higher than 0.005 mg/L.

In Ontario, the PWQO for uranium is an “Interim PWQO...set for emergency purposes based on the best information readily available.” The Ministry of the Environment warns people to “Employ due caution when applying this value.”³

I understand that Polonium-210 is deadly to humans. Sampling found concentrations of lead-210 and polonium-210 both up to 33 Bq/g.⁴

² Ontario Ministry of the Environment (2003) [Bancroft Area Mines \(Madawaska, Bicroft and Dyno Mines\) Assessment of Impact on Water, Sediment and Biota from Historical Uranium Activities](#), Executive Summary section

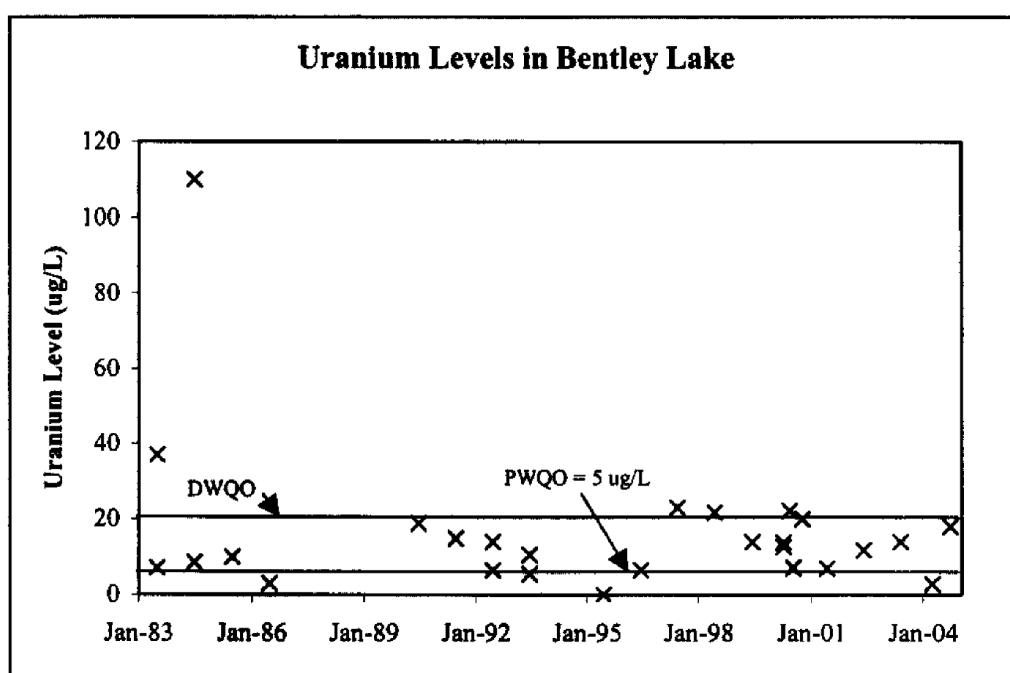
³ Ontario Ministry of the Environment and Energy [Water management: policies, guidelines, provincial water quality objectives](#)

⁴ Page 43, Golder Associates “2010 Groundwater Investigations” Report No. 06-1118-025 (11000)

SENES Consultants' 2005 report *Pathways Analysis for Madawaska Mine Site* is not in the public domain. Page 2-8 (see graphic below) notes uranium levels in Bow Lake at around 70µg/L, thirty five times that of the Provincial Water Quality Objective of 5µg/L. Bentley Lake levels peak at around 110µg/L in the mid-1980s

Pathways Analysis for Madawaska Mine Site

FIGURE 2.3
URANIUM AND RADIUM-226 CONCENTRATIONS MEASURED IN
BENTLEY LAKE BETWEEN 1983-2004



The report states “there are potential risk of adverse health effects with respect to uranium for local residents.” The report states that the radiative doses “were below the regulatory limit of 1000µSv/y”. They ranged between 281 and 600µSv/y mostly from fish consumption. This is an area where people fish. The report does not state what quantity of fish are safe to eat. I have received no information about this important safety data point. Rehabilitation of Madawaska Mine started in 2015.⁵

Transparency gaps

CNSC’s webpage [Regulatory Oversight Reports for Uranium Mines and Mills](#) states that reports on mines are shared “every two years.” Despite this, the most recent report on the page is from 2021. The public information website www.madawaskamine.com has been taken down.

⁵ CNSC [Independent Environmental Monitoring Program: Dyno, Bicroft, and Madawaska Mines](#)

In 2021, the IAEA published the licensee's [Legacy Mine Properties Perpetual Management Strategy](#). That document was also taken down, and is now only accessible using an [archive](#). The document notes the "inappropriate/inadequate initial closure" of the mine, a "lack of records, drawings or plans" an "absence of a corporate memory" amongst other problems.

Information about the mine is therefore being removed from the internet. It is difficult to find the information that I consider essential to understand the public health information and risks to the ecology.

CNSC's document [REGDOC-3.2.1, Public Information and Disclosure](#) is relevant to uranium mines, and requires licensees to create *public information programs* about mines. CNSC staff tell me that, because Madawaks Mine is "decommissioned", the "licensee is not required to develop and implement a public information program." I think that when these rules were written, CNSC likely considered mines to be simply *active* or *decommissioned*. This mine seems to be somewhere between these two states - neither an active mine and yet also not properly decommissioned. I think therefore simply classifying it as "decommissioned" in the context of it being so poorly decommissioned that CNSC required remediation, is to apply a binary lens. I consider this binary classification system not fit for purpose. My list of requests below include categorizing this mine in a manner that creates a need for some type of public information program.

I noted previously the lack of public information about safe quantities for local fish consumption. The Ontario Government *Guide to Eating Ontario Fish* does not consider heavy metals, and yet the safety (pathways) assessment includes undisclosed assumptions about this.

Tailings Dam Safety

Madawaska Mine tailings are held behind three tailing dams. The August 4, 2014 Mount Polley mine collapse was described by Amnesty International as "[The worst mining disaster in British Columbia's history](#)" and noted that the dam's failure released "25 million cubic metres of mine tailings and waste water into pristine Quesnel Lake". The disaster prompted regulators to investigate the safety of tailings dams. During that process, the CNSC noted that "the licensee was claiming that the Bentley dam should not be considered as dam anymore."⁶ I find this worrying.

Reporting Frequency

CNSC's [Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2023](#) report notes that "In 2021 and 2023, [the licensee] continued rehabilitation/maintenance work on the 2 TMA [Tailings Management Areas]" Details are scant and readers are left uninformed about the recent progress or impact of the work.

⁶ October 4, 2018 internal CNSC email "Re: Madawaska Decommissioned Mine - Tailing Impoundments - Mt Polley"

Because the mine is classified as “decommissioned” the public are updated every three years, with a time-lag between the reporting period ending and the publication adding approximately one more year. The three-year reporting cycle, in my opinion, is inadequate for a mine that was improperly closed. In such circumstances the public will naturally have an increased desire for timely updates.

Independent Environmental Monitoring

Independent Environmental Monitoring is not regularly undertaken. It last occurred in 2019. On Feb 5, 2014, the then licensee wrote to the CNSC stating that they are “not prepared to conduct the groundwater monitoring program nor use a solute transport model as recommended by CNSC.”⁷ I also find that worrying.

My requests to the CNSC:

1. Inform the public if the mine has been properly closed/decommissioned, or not.
2. Inform the public if the mine closure was successful and share details and analysis on groundwater, surface water and sediment contamination data.
3. Switch to annual reporting until the above facts have been confirmed the shared with the public.
4. Embrace a culture of proactively informing the public about ecological and human health risks.
5. Initiate independent environmental assessments and publish the results online in a way that enables the public to be aware of the risks.
6. Issue guidance to people who live near the mine about risks from ingestion of fish, game and other animals, and of other risks associated with living near the former mine (e.g. infants ingesting soil, and breathing particulates.)
7. Demand groundwater, surface water and sediment monitoring by the licensee.
8. Only consider former mines to be “decommissioned” when they are fully decommissioned to the required standard and:
 - a. Require licensee to implement a public information program, or at least a reasonable middle compromise between no program and a full one.
 - b. Report on the mine annually, rather than every three years.
9. Direct staff to proactively share all relevant ecological and human health and other safety information.
10. Give the public more than 36 hours to prepare submissions like this.

In summary, as a concerned member of the public who lives close to the mine, I struggle to understand the ecological and public health risks. Treating the inadequately decommissioned mine like properly decommissioned mines does not serve the public. Please direct staff to increase regulatory oversight and transparency in the public interest.

Sincerely,

Chris Houston.

⁷ Letter to CNSC from EWL Management Ltd “Re: Madawaska Decommissioned Mine Site - WNSL-W5-3100.1-2021 Response to CNSC Recommendations on Human Health Risk Assessment