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**Written submission from the
Township of Nairn and Hyman**

**Mémoire du
Township of Nairn and Hyman**

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

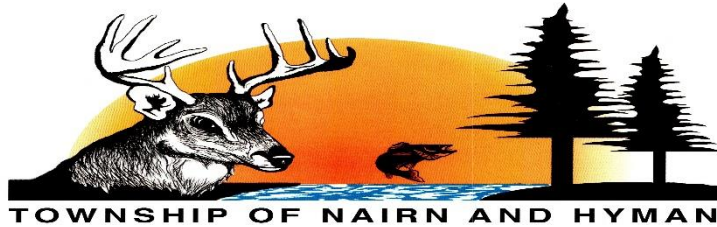
**Rapport de surveillance réglementaire
des mines et usines de concentration
d'uranium et des sites historiques et
déclassés au Canada : 2023**

Commission Meeting

Réunion de la Commission

January 29, 2025

29 janvier 2025



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December 10, 2024

Canadian Nuclear Safety Commission
280 Slater Street, P.O. Box 1046
Ottawa, ON
K1P 5S9

Dear President Pierre Tremblay and Commission Members:

RE: Comments on the Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada: 2023

The Township of Nairn and Hyman welcomes the opportunity to provide detailed comments on the Canadian Nuclear Safety Commission's (CNSC) *Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, 2023* (ROR). This submission builds on findings from previous CNSC regulatory reports, the Ministry of Mines 2023 Annual Report – Agnew Lake Tailings Management Area Licence Number WNSL-W5-3102.1/2025 -Letter to CNSC; March 28, 2024, as well as several technical reports prepared for the Township of Nairn and Hyman by Hutchinson Environmental Sciences Limited (See Appendix 1).

On behalf of the Council of the Township of Nairn and Hyman, and our residents, especially those who reside on Agnew Lake, we wish to express our community's growing concerns regarding the environmental and public health risks associated with the Agnew Lake Tailings Management Area (TMA). While the site has been inactive as a uranium mining and milling operation since 1983, its legacy persists, presenting ongoing challenges that demand urgent attention. This area is also of a particular concern for the Township of Nairn and Hyman as it is near the Spanish River and Agnew Lake, both essential sources of drinking water for our residents and surrounding communities. Our submission will also address the proposed transport of niobium tailings from the Nova Beauce Waste Site to the Agnew Lake TMA, a development that introduces additional risks to an already precarious situation.

Environmental Monitoring and Contamination

The 2023 Annual Report prepared by the Ministry of Mines exposes critical deficiencies in the Agnew Lake TMA's environmental monitoring and contamination levels. Groundwater, surface water, and soil samples collected during the monitoring period indicate widespread exceedances of contaminants and heavy metals.

The report indicated exceedances of:

- Uranium in soils adjacent to the TMA and sediments to the west of the creek;
- Arsenic in sediment around the TMA;
- Uranium in groundwater upgradient of the middle dam in June 2023;

- Cobalt and uranium in spring surface waters below the West Dam;
- Uranium in fall surface waters from the Middle Dam (suspected sampling error);
- Iron in upstream and downstream surface waters in spring;
- Cyanide in Middle Dam surface waters in the spring; and
- Radium in the West Dam surface waters in the fall.

Despite these exceedances, the report stated that “*there were no reportable events taking place at the Agnew Lake TMA in the year 2023*”. (Page 8).

Compromised Infrastructure

The structural integrity of the Agnew Lake TMA is an ongoing concern. The tailings cover, designed to limit exposure to rainwater and prevent leaching of contaminants, has been compromised by erosion and insufficient maintenance. Specific erosion issues at the East Barrier Dyke remain unresolved, despite being identified in earlier reports, including a third-party review conducted in 2018. This erosion is not only a sign of the site's deteriorating condition but also a vector for contaminants to escape into surrounding soils and water bodies. The lack of a robust maintenance plan exacerbates these risks, leaving the environment and our residents vulnerable.

Inadequate Groundwater Monitoring Network

The current groundwater monitoring network is insufficient to evaluate the full extent of contamination. Key wells are in poor repair or not operational, and the network lacks coverage in critical areas likely affected by contaminant migration.

Niobium Tailings Relocation

Adding to our concerns is the ongoing transportation of 18,600 m³ of niobium tailings from the Nova Beauce Waste Site for deposition at Agnew Lake. This relocation, while framed as an improvement to the site, raises serious questions about the rationale and potential consequences of introducing additional materials to a site already struggling with contamination.

While the Ministry of Mines has assured us that niobium tailings will improve site conditions by providing additional radiation shielding, the lack of transparency surrounding this project undermines confidence in these claims. Key documents, including environmental monitoring reports, environmental risk assessments, and formal engineering plans for the site were promised to be provided to the Township in 2024, however, to date these have not been forthcoming.

We are strongly advocating that the Agnew Lake site should be remediated using clean, inert materials, not additional materials that may contribute to its contaminant load. The introduction of niobium tailings appears to be a convenient solution to another contamination problem elsewhere, and we fear it may worsen the long-term environmental challenges faced by the TMA.

Regulatory Oversight and Transparency

The Canadian Nuclear Safety Commission's *Regulatory Oversight Report* is critical to understanding and addressing the risks posed by decommissioned uranium mines like Agnew Lake. However, the 2023 report lacks the site-specific detail necessary to evaluate whether conditions at the TMA are truly "satisfactory," as concluded by CNSC staff. For instance, the report fails to acknowledge contaminant exceedances in groundwater and surface water, as well as the deteriorating condition of the TMA cover and other infrastructure.

The vague language and lack of supporting data in the oversight report do little to reassure our community that CNSC's regulatory role is being carried out effectively. We believe greater transparency

is needed, including the release of detailed inspection results, performance evaluations, and compliance assessments for the Agnew Lake site. Without this level of detail, it is impossible for stakeholders, including the Township of Nairn and Hyman, to meaningfully engage with or trust the regulatory process.

Recommendations

To address these pressing concerns, we strongly recommend the following actions:

1. **Comprehensive Site Assessment:**

The Agnew Lake TMA requires a full environmental assessment to evaluate the extent of contamination in both surface water and groundwater systems. This assessment should include detailed mapping of contaminant plumes and identification of all potential pathways leading to drinking water sources.

2. **Suspension of Tailings Transport:**

We are recommending that the CNSC conduct a full review of the proposed niobium tailings relocation project, including its environmental and health impacts, and suspend the project until all community concerns are addressed.

3. **Use of Clean Materials for Remediation:**

We urge CNSC and the Ministry of Mines to reconsider the use of niobium tailings as part of the site's remediation strategy. Instead, clean, inert materials should be employed to improve site conditions and restore ecological balance without introducing additional contaminants.

4. **Enhanced Monitoring and Maintenance:**

A robust monitoring program must be established, with more frequent sampling at a greater number of locations. The program should include all contaminants of potential concern (CoPCs) and address the current gaps in groundwater and surface water monitoring.

5. **Increased Transparency and Community Engagement:**

The lack of accessible technical documents undermines public trust. We are requesting that all relevant documents, including risk assessments, monitoring data, and inspection reports, should be made public in an accessible format.

The Agnew Lake Tailings Management Area represents both a historical and ongoing environmental challenge for our community. While we recognize the complexities involved in managing a decommissioned site, the current approach leaves much to be desired in terms of safety, transparency, and long-term sustainability.

Our Township remains committed to advocating for the health of our residents and the protection of our natural resources, especially in view of the proposed transportation of niobium tailings from the Nova Beaucage Waste Site. We respectfully request that CNSC take these concerns seriously and implement the recommendations outlined above.

Thank you for your attention to this critical matter. We look forward to your response and continued dialogue.

Sincerely,

Belinda Ketchabaw

Belinda Ketchabaw

CAO

The Township of Nairn and Hyman

**The Township of Nairn and Hyman's Submissions on
CNSC's Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in
Canada (2023)**

APPENDIX 1

Technical review was prepared for the Township of Nairn and Hyman by
Hutchinson Environmental Sciences Ltd.



December 09, 2024

Project No. 240184

Belinda Ketchabaw
Township of Nairn and Hyman
64 McIntyre St.
Nairn Centre, ON P0M 2L0

Dear Ms. Ketchabaw,

Re: Technical Review of the Canadian Nuclear Safety Commission's "Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada" (2023) and Agnew Lake Tailings Management Area Information

This letter presents comments and questions on information sources related to and including the Canadian Nuclear Safety Commission's (CNSC) "Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, 2023" and associated Agnew Lake annual reporting for 2023. The review of information was conducted for both Northwatch and the Township of Nairn and Hyman, and focussed on the implications of environmental conditions at the Agnew Lake (Ministry of Mines) decommissioned uranium mine site, a receiving facility for tailings from the Beaucage Mine. The potential for Agnew Lake site conditions to impact surface water and groundwater which is a source of drinking water for the Township of Nairn and Hyman, was a key objective of this review.

Detailed review findings are provided in the attached review document. The detailed findings are important to consider for potential improvements in tailings management area monitoring, environmental effects monitoring, data analysis and data quality, findings presentation and follow-up actions. The project scope and limitations of the review are also discussed to provide context for the review comments. A summary at the end of the review evaluates the Township's key concerns.

Note that this letter is provided to inform the Township's comments on the CNSC Regulatory Oversight Document. An assessment of conceptual pathways from the Agnew Lake Tailings Management Facility to Township drinking water sources (Spanish River and Agnew Lake) will be subsequently completed, and the results of this pathway screening should be read in the context of this review.

We hope this review will provide constructive feedback on licensee information collection, analysis and communication, and will result in increased transparency from the regulator and licensee.

Sincerely,

Per. Hutchinson Environmental Sciences Ltd.

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1. Introduction

Hutchinson Environmental Sciences Ltd. (HESL) was retained by the Township of Nairn and Hyman to conduct a technical review of documents pertaining to the Agnew Lake Tailings Management Facility and the ongoing disposal of tailings from the Nova Beaucage Waste Site to the receiving Agnew Lake site, to identify potential effects to groundwater from the tailings placement. A technical review of the CNSC's Regulatory Oversight Report, initially reviewed for Northwatch, was also included for regulatory context, to determine if the report adequately reflected Agnew Lake site conditions. The Agnew Lake site is of particular interest to the Township due to its proximity, and the potential impacts of the Tailings Management Area on the Township's drinking water resources.

Historic and decommissioned uranium mine sites are under license by the Canadian Nuclear Safety Commission (CNSC). The licensees prepare annual reports describing site conditions and environmental monitoring for individual mine sites, which are submitted to the CNSC. A summary Regulatory Oversight Report is prepared by CNSC every three years, providing CNSC staff's assessments of the safety performance of individual mine sites.

The Agnew Lake Tailings Management Facility is licensed by the Ministry of Mines. The mine and mill were operated from 1977 to 1983, with decommissioning work completed in 1988. The mine site is currently undergoing post-decommissioning monitoring, including radiation measurements and environmental quality (surface water, groundwater, soil, and soil porewater) monitoring. The Agnew Lake site has been inspected by CNSC in 2022, 2023, and 2024, in preparation for the transfer of niobium tailings from the Beaucage mine site to the Agnew Lake TMA.

The Niobium Rock Tailings Relocation Project involves the transport of niobium rock tailings from the Beaucage Mine site in Nipissing, Ontario, for disposal at the Agnew Lake TMA. The niobium rock tailings amounts to 18,600 m³, which will be deposited in layers in a designated area of the TMA, followed by remediation and restoration to natural conditions, including the placement of topsoil and seeding. The tailings relocation was anticipated to start in July 2024.

2. Objectives and Scope of Review

The Regulatory Oversight Report and associated Agnew Lake information were reviewed to evaluate:

- Whether conditions at the Agnew Lake Tailings Management Area are effectively protecting surrounding waterways (Spanish River and Agnew Lake), which are a source of drinking water for the Township;
- Whether it is possible that the Agnew Lake Tailings Management Area is contaminating the surrounding environment (with uranium and/or heavy metals);
- If the ongoing transportation of low-level radioactive material (niobium tailings) from the Beaucage Mine is a threat to water quality; and,
- If CNSC's Regulatory Oversight Report adequately and effectively reflected the Agnew Lake site condition information found in the annual report prepared by the Ministry of Mines.



A more complete evaluation of these objectives will be provided following the conceptual groundwater and surface water pathway evaluation for Township drinking water sources.

The information reviewed varied in purpose and technical depth. The following documents were reviewed:

- Canadian Nuclear Safety Commission (2023). Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, 2023.
- Ministry of Mines (2024). 2023 Annual Report – Agnew Lake Tailings Management Area License Number WNSL-W5-3102.1/2025.
- Ministry of Mines (2024). Presentation: Agnew Lake Tailings Management Area – Niobium Rock Tailings Relocation Project. September 11, 2024.
- Ontario Ministry of Transportation; Ontario Ministry of Mines (2024). Agnew Lake Tailings Management Area, Niobium Rock Tailings Relocation Project, Town Hall. September 11, 2024.
- Beaucage Mines Report, Manitoulin Islands, North Bay, Ontario. 1956.

This review was conducted to assess actual and potential environmental concerns for human and ecological receptor health, and did not include a review of occupational health and safety, industrial processes, compliance audits, wildlife and human health assessments, or other non-environmental issues. This review provides comments and questions to clarify future regulatory oversight and associated reporting at the Agnew Lake mine site, to encourage improvements in monitoring, reporting, and responses to actual or potential concerns. HESL does not guarantee that all environmental concerns related to the Agnew Lake site were captured in this review.

3. Review Findings

3.1 2023 CNSC Regulatory Oversight Report

Canadian Nuclear Safety Commission (2023). Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, 2023.

Review Comments

The report presented CNSC staff's assessment of licensee performance for operating historic and decommissioned uranium mines and mills regulated by CNSC, as well as providing information on the five uranium mines and mills licensed to operate in Canada (northern Saskatchewan). The report focussed on 3 of the 14 safety and control areas that CNSC evaluates, including radiation protection, environmental protection, and conventional health and safety.

This review found that the CNSC report provided a general overview of the role CNSC plays in regulating the licensees and rating safety and control area (SCA) performance. The information CNSC provided for the Agnew Lake site (and other decommissioned mine sites), was brief, and generally did not contain specific information from the monitoring period nor did it characterize the current site conditions. Site history details for the Agnew Lake site were summarized, and a brief description of CNSC staff's evaluation of the Agnew Lake mine's performance (in the SCAs of radiation protection, environmental protection, and conventional health and safety) as a result of inspections over the reporting period were provided in the



report. A summary of key information for the site, such as ‘state of the environment’ updates specific to 2023, was not provided, and it was difficult to understand how CNSC staff evaluated the Agnew Lake site performance.

CNSC’s performance evaluation for the key SCAs was ‘satisfactory’ for all of the historic and decommissioned mine sites (including Agnew Lake), but no information was provided detailing how the classification was determined, nor were any specific evidence-based updates provided (e.g., current water quality and radiation levels) that would reassure readers that conditions were indeed ‘satisfactory’ and increase confidence in CNSC’s performance evaluations. The Agnew Lake Mine was not sufficiently described for the reviewer to evaluate whether CNSC’s assessments of the sites were reasonable, or if environmental or human health concerns existed. CNSC’s future expectations for the Agnew Lake site were also unclear.

Insufficient detail is an ongoing concern in CNSC’s regulatory oversight reporting, as was stated in HESL’s previous review of the 2017 CNSC Regulatory Report (HESL, 2018). It is therefore difficult to evaluate whether the regulatory report adequately reflects the information found in Agnew Lake’s annual report prepared by the Ministry of Mines (the licensee).

Recommendations

Future CNSC reports should provide more robust technical information, including site-specific temporal data from the assessment period, to characterize current conditions at the Agnew Lake site, document specific concerns and non-compliances (if any), and provide evidence to support CNSC staff assessments of each mine site. Detailed descriptions of data used by CNSC to determine that Agnew Lake’s performance was satisfactory should be provided, for transparency and to provide a more fulsome understanding of the criteria used to determine this evaluation.

Review findings and associated comments/information requests are presented in Table 1 (note that limited site-specific information pertaining to the Agnew Lake TMA and additional decommissioned mine sites was provided, and therefore more targeted comments/information requests could not be presented).

Table 1. Findings of CNSC (2024): Regulatory Oversight Report for Uranium Mines, Mills, Historic and Decommissioned Sites in Canada, 2023, and review comments and questions.

Report Finding	Comment/Question
<p><i>Section 9.3, P. 99</i></p> <p>The CNSC Report stated that “<i>licensees include program documentation for the environmental protection SCA as part of the overall management system documents; these form part of the licensing basis for these sites.</i>” (P. 99). CNSC did not elaborate on what is specifically required of licensees for monitoring and documenting environmental protection.</p>	<p>CNSC should describe what is specifically required of licensees under the environmental protection SCA (i.e., the definition of a non-compliance; the extent of monitoring required at each site, etc.), to clearly document potential environmental concerns, and to increase public confidence in CNSC’s regulatory role.</p>



Report Finding	Comment/Question
<p data-bbox="203 233 797 268"><i>Plain Language Summary, P.10; Section 6.1, P. 75</i></p> <p data-bbox="203 310 797 968">CNSC stated that “from 2021 to 2023, CNSC staff performed a total of 11 inspections across the 12 historic and decommissioned sites and found 3 non-compliances” (P. 10). The regulatory document also stated that a baseline compliance inspection of the Agnew Lake TMA was to be conducted in fall 2024 prior to the site receiving Beaucage Mine tailings (P. 91). However, the actual frequency and findings from CNSC inspections that should have occurred over the reporting period (2021 to 2023) were unclear in the document. Section 6.1 stated “based on CNSC staff’s baseline inspection plan, the 2 remediation projects and the decommissioned sites are required to have at least 1 inspection per 3 years” (P. 75). Specific findings from inspections during the reporting period were not disclosed in the regulatory document.</p>	<p data-bbox="820 233 1422 562">CNSC should describe the findings of all inspections of decommissioned mine and mill sites that occurred over the reporting period (2021-2023). This is of particular concern for the Agnew Lake TMA, where several concerns were identified by previously by HESL (2018) and an inspection was to be conducted in fall 2024 in advance of receiving Beaucage Mine tailings, and current site conditions are unknown.</p>
<p data-bbox="203 1010 435 1045"><i>Section 8.6.1, P. 91</i></p> <p data-bbox="203 1087 797 1304">The report stated that “repair to the cover of the TMA and the addition of the niobium bearing material, scheduled to begin during the summer of 2021, was delayed due to covid pandemic restrictions, and is now scheduled to take place in 2024.” (P. 91)</p> <p data-bbox="203 1346 797 1451">No other information regarding the niobium relocation project (from Beaucage Mine) was provided.</p>	<p data-bbox="820 1010 1422 1339">CNSC should provide additional information on existing Agnew Lake site conditions over the reporting period, including details of additional environmental assessment work in advance of receiving the niobium tailings. Addition of niobium tailings may cause further environmental concerns, or alternatively, the tailings addition and assumed subsequent closure could improve conditions at Agnew Lake if completed properly.</p>

3.2 Agnew Lake Tailings Management Area

The Agnew Lake TMA is a particular concern for the Township of Nairn and Hyman. A previous review of CNSC regulatory reports conducted by HESL in 2018 identified concerns with care and maintenance of the Agnew Lake tailings cover, potential environmental effects on surface water near the TMA, and unknown effects from the pending import of tailings from the Beaucage Mine.

Ontario Ministry of Transportation and Ministry of Mines (2024). Agnew Lake Tailings Management Area – Niobium Rock Tailings Relocation Project. Presentation; September 11, 2024.

A 2024 presentation prepared by the Ministry of Transportation and Ministry of Mines regarding the Agnew Lake TMA and Niobium Rock Tailings Relocation Project (Beaucage Mine tailings) was reviewed to gain a general understanding of the current site conditions and the proposed niobium rock tailings disposal work (and associated environmental protective measures and concerns). A general summary of the proposed site work was provided, including temporary environmental protection measures (i.e., perimeter sediment fencing, transition zones at all staging areas, containment of all water used for decontamination, tarping of material). The presentation stated that “*the targeted placement of niobium rock tailings will improve the overall site*” by providing additional radiation shielding in maintenance areas, as 12-15 cm of clean material and topsoil will be placed on the niobium rock tailings and revegetated. However, two specific areas of the TMA require maintenance, as public radiation dose limit exceedances (1.83 mSv/year) appear to have occurred in this area over the reporting period, posing a risk to casual site users, such as hunters.

Canadian Nuclear Safety Commission (2024). Regulation of Agnew Lake Tailings Management Area; Townhall with Township of Nairn and Hyman, and Baldwin. September 11, 2024.

A 2024 presentation prepared by CNSC regarding CNSC’s role in regulating the Agnew Lake TMA was reviewed to gain additional information on what has been communicated to the public regarding the current state of the Agnew Lake TMA. No information was provided in the presentation regarding current site conditions and circumstances surrounding the transport of Beaucage material to the TMA (e.g., timelines, additional environmental monitoring, etc.), and was not useful for this technical review.

Ministry of Mines (2024). 2023 Annual Report – Agnew Lake Tailings Management Area License Number WNSL-W5-3102.1/2025. Letter to CSNC; March 28, 2024.

The Agnew Lake TMA 2023 Annual Report was brief, but contained an analysis and discussion of surface water and groundwater sampling around the TMA in 2023. The report included results of 2023 maintenance work, inspections and sampling, and a summary of work to be completed in 2024, including a Gamma Radiation Survey (spring 2024), and work to be done in preparation for the Beaucage Mine Niobium Relocation Project. No radiation survey results were provided in the 2023 report, and it was unclear if radiation surveys had been conducted in the spring. Ongoing concerns existed with the care and maintenance of the TMA cover, as identified previously in HESL’s 2018 review. Although more detailed site information was provided in the Annual Report than was provided by CNSC (2024), there were several data concerns with the 2023 monitoring, as well as CoPC exceedances in surface waters, soils, sediments, and groundwater around the TMA.

Based on the information presented, Agnew Lake site conditions do not appear to be improving, and several parameters remain above environmental quality guidelines. There were also several surface water and groundwater monitoring stations that were not analyzed. The report indicated exceedances of:

- Uranium in soils adjacent to the TMA and sediments to the west of the creek;
- Arsenic in sediment around the TMA;
- Uranium in groundwater upgradient of the middle dam in June 2023;



- Cobalt and uranium in spring surface waters below the West Dam;
- Uranium in fall surface waters below the West Dam;
- Several metals in surface waters from the Middle Dam (suspected sampling error);
- Iron in upstream and downstream surface waters in spring;
- Cyanide in Middle Dam surface waters in the spring; and,
- Radium in the West Dam surface waters in the fall.

Despite these exceedances, the report stated that “*there were no reportable events taking place at the Agnew Lake TMA in the year 2023.*” (P. 8).

Discussion of how the tailings relocation from Beaucage Mine could affect the TMA was not included, nor was any mention of how tailings placement could potentially improve Agnew Lake conditions, as was asserted by Ministry of Mines in the September 2024 presentation. An environmental monitoring program (to be implemented during the construction phase of the niobium relocation project) was to be developed by Ecometrix Inc. and was anticipated in April 2024.

Specific review findings for the report are presented in Table 2.



Table 2. Specific findings of Ministry of Mines (2024): Agnew Lake 2023 Annual Report.

Report Finding	Comment/Question
<p><i>Section 2 – 2023 Maintenance Work, Inspections and Sampling.</i></p> <p>The report stated that “between June 12 and 14, three wells were installed including a well located downgradient from the West Dam (MW 101), one located at the middle dam upgradient from the middle dam (MW103) and a well to monitor background groundwater levels that was installed upstream of the discharge point into the Ministic Creek...the reduced number and distance between each location of the installed monitoring wells provided a limited number of groundwater elevation data points, making it challenging to interpret shallow groundwater flow directions” (P. 1-2).</p> <p>The report stated that well installation details are included in Appendix A of the report.</p>	<p>No information regarding well installation details or groundwater sampling protocols was provided in the body of the report. The report stated that Appendix A included well installation details, however, it Appendix A was attached to the report in the copy reviewed by HESL. The purpose of each monitoring well was not included in the report.</p> <ul style="list-style-type: none"> • The licensee should provide well records (i.e., Appendix A attachment) and detailed installation and sampling protocols that were followed for monitoring well installation, borehole soil sampling, and groundwater well development and sampling. • The licensee should describe the purpose of each new monitoring well installed on the site (i.e., target soil lithology, shallow vs. deep monitoring).
<p><i>Section 2 – 2023 Maintenance Work, Inspections and Sampling.</i></p> <p>Uranium concentrations from soil (borehole) samples collected adjacent to the TMA (BH01, BH02, BH03) were higher than provincial standards (MOE, 2011: Table 8: Generic Site Condition Standards for Use within 30 m of a Water Body in Potable Groundwater Condition), and was highest in the “worst case” sample collected from the orange precipitate-containing sediment in the creek west of the West Dam.</p>	<p>The high uranium concentrations in soils adjacent to the TMA and sediments in the west creek are concerning. It is unclear if the licensee took actions to investigate the cause of the concerning concentration.</p> <ul style="list-style-type: none"> • Has the licensee taken steps to investigate and/or address the concerning uranium concentrations in soils and sediments near the TMA?
<p><i>Section 2 – 2023 Maintenance Work, Inspections and Sampling.</i></p> <p>The report stated that “a sediment sample taken from the area south of MW103 on June 13 contained 110 µg/g of arsenic. The standard for both Canada and Ontario is 6 µg/g.” (P. 2).</p>	<p>The high arsenic concentration in sediments around the TMA is a concern. It is unclear if the licensee took actions to investigate or mitigate the cause of the concerning concentration.</p> <ul style="list-style-type: none"> • Has the licensee taken steps to investigate and/or address the concerning arsenic concentrations in sediments near the TMA?



Report Finding	Comment/Question
<p><i>Section 2b – Groundwater Sampling</i></p> <p>The report stated that in the June sampling event, uranium concentrations exceeded PWQO at station MW103 (upgradient from the middle dam).</p> <p>Additionally, the remaining wells (MW101 and MW104) were not sampled in the fall (September 2023), as the wells had insufficient water. Although the report stated that MW101 and MW104 were sampled in June 2023, no analytical results were recorded in Table 2 (P. 3).</p>	<ul style="list-style-type: none"> • Has the licensee taken steps to investigate and/or address the high uranium concentrations in groundwater upgradient of the middle dam? • The licensee should explain why data collected from groundwater monitoring stations in June was not reported. • Groundwater appears to only be analyzed for uranium; no other CoPCs are analyzed/reported. What CoPCs does CNSC require the licensee to monitor (and report) in groundwater?
<p><i>Section 2c – Surface Water Sampling</i></p> <p>The report stated that “<i>for the spring event, exceedances of cobalt and uranium [in surface water] were detected below the West Dam (AL101)....iron was two orders of magnitude higher in concentration below the West Dam [37000 mg/L].</i>” (P. 3) Iron, copper, and aluminum exceedances also occurred downstream in John Creek (fall 2023).</p> <p>Iron exceedances also occurred at stations AL110 (Ministic Creek upstream) and AL111 (Ministic Creek downstream) during the spring surface water sampling event.</p> <p>In Tables 3 and 4 (P. 4), several parameters were not reported or discussed at several surface water monitoring stations (e.g., at AL108 and AL109, only aluminum, copper, and iron are reported; additional parameters are not discussed).</p>	<p>The exceedances detected in surface water below the West Dam are a potential concern. It is unclear if exceedances of cobalt and uranium have been consistently high in downstream surface waters, as the 2023 data was not compared to previous data.</p> <ul style="list-style-type: none"> • Will the licensee provide comparisons of spring exceedances to previous monitoring data from the same period for the AL101 station? • Has the licensee conducted any additional monitoring or investigation into the cause of the cobalt and uranium exceedances in surface water? • Why are several CoPCs not discussed/reported at all surface water stations (e.g., stations AL101, AL108, AL109, AL111, AL110)? • What is Agnew Lake’s action/response protocol when an exceedance occurs? What does CNSC require of the licensees when an exceedance occurs? • What CoPCs does CNSC require the licensee to monitor in surface water?



Report Finding	Comment/Question
<p><i>Section 2c – Surface Water Sampling</i></p> <p>The report stated that “discrepancies between [surface water] samples taken from AL110 (Ministic Creek upstream) and the duplicate sample were also noted. As the results reported for AL110 are consistent with past sampling events, a possible contamination event during sampling likely occurred.” (P. 3).</p>	<p>The discrepancy between the Ministic Creek upstream and the only duplicate sample collected for surface water suggests that possible contamination of other surface water samples may have occurred.</p> <ul style="list-style-type: none"> • The surface water sampling methodology used at the Agnew Lake site should be provided. Note: this may be included in Appendix A, which was not attached to the report. • How will the licensee prevent sample contamination from occurring in the future?
<p><i>Section 2c – Surface Water Sampling</i></p> <p>During the fall sampling event, uranium exceeded PWQO below the West Dam. Ten metals sampled at station AL105 (Middle Dam) also exceeded PWQO in the fall (although several metal exceedances may have been due to a high amount of sediment in the samples) - The report stated that “while it is normal for exceedances to increase in samples taken later in the year due to low water levels and flows, some of the exceedances reported for total metals may be explained in part by the amount of solid material in the samples. Low water and mucky conditions at AL101 and AL105 made it challenging to collect sediment-free water and as a result, total metal concentrations could have been exaggerated...dissolved uranium still exceeds the PWQO below the west Dam, but dissolved arsenic is below the PWQO, indicating that the total arsenic result likely reflected the sediment conditions in this area ” (P. 3).</p>	<p>Despite concerns with high sediment in AL101 and AL105 surface water samples which likely affected total metal concentrations in samples, the uranium exceedance at the West Dam is a concern.</p> <ul style="list-style-type: none"> • Has the licensee taken steps to investigate and/or address the high uranium concentrations in surface water below the west dam?
<p><i>Section 2c – Surface Water Sampling</i></p> <p>An exceedance of free cyanide was detected in the spring at surface water station AL105 (Middle Dam), and in the fall, an exceedance of</p>	<p>Despite concerns with sediment impacts on the fall surface water sampling, the free cyanide concentration detected in the spring at the Middle Dam is a concern. The licensee has not proposed additional</p>



Report Finding	Comment/Question
<p>radium-226 at AL101 (West Dam). The report stated that <i>“both of these results have not been reported in previous sampling efforts. Continued sampling in 2024 and after will confirm if these results reflect new trends or an error in sampling”</i> (P 5).</p>	<p>monitoring outside of the regular annual monitoring to confirm if the cyanide concentration is a concerning trend.</p> <ul style="list-style-type: none"> Is the licensee’s response to the cyanide exceedance in accordance with CNSC’s expectations?
<p><i>Section 2d – Vegetation Removal</i></p> <p>In 2023, vegetation was removed from the West Dam spillway and East Barrier Dyke using an excavator, and efforts were made to minimize rutting/surface disruption on the TMA (although minor rutting still occurred). An area of erosion was identified along the East Barrier Dyke, and the report stated that this area was to be repaired once the niobium project was finished (P. 6).</p>	<p>HESL’s 2018 review identified tailings cover maintenance as a key shortcoming at Agnew Lake. No additional information regarding care and maintenance of the TMA cover was provided in the 2023 Annual Report outside of the vegetation removal; erosional concerns at the East Barrier Dyke are outstanding and may be an ongoing concern.</p> <ul style="list-style-type: none"> Has the licensee implemented mitigative measures to prevent further erosion at the East Barrier Dyke? What care and maintenance activities is the licensee required to perform on the TMA on an annual basis (if any)?
<p><i>Section 3: Other Activities Undertaken; Section 6: Work Planned for 2024</i></p> <p>Ecometrix Inc. was retained to prepare a Conceptual Site Model and Environmental Risk Assessment for the site, and the scope of work included developing an environmental monitoring program to be implemented during the construction phase of the niobium relocation project, including a 5-year monitoring program to assess the impacts of the niobium relocation project. This will <i>“assess and monitor any impacts resulting from an addition to the site’s inventory.”</i> (P. 7) Preliminary results were expected in late April 2024.</p> <p>The report also stated that the Conceptual Site Model/Risk Assessment anticipated in April 2024 would <i>“provide recommendations for changes in the project design, mitigation measures, and monitoring program</i></p>	<p>It is unclear why the preliminary results of the environmental monitoring program for the niobium relocation project were not disclosed in the 2023 Annual Report.</p> <ul style="list-style-type: none"> Has the licensee provided the preliminary results (including additional groundwater monitoring well installation details and any monitoring results) in a separate report in April? This data should have been provided in advance of niobium tailings relocation (hauling of niobium material was anticipated to start in July 2024 and may have been completed in October). The April 2024 report by Ecometrix should be provided to the Township to review and understand the current risks associated with the site.



Report Finding	Comment/Question
<p><i>including the installation of additional groundwater monitoring wells” (P. 8).</i></p>	
<p><i>Figure 1. Drilling and Sampling Locations</i></p> <p>Figure 1 of the report (P. 10) shows that MW103 (previously reported to be upgradient of the middle dam) is located near the West Dam. It is unclear if the middle dam groundwater well has been mislabelled as MW101 on the figure, or if the report discussion incorrectly identified MW103 as the middle dam monitoring well.</p> <p>Additionally, MW104 is located upstream of the discharge point into the Ministic Creek, to serve as a background monitoring well. Results from the June sampling event were not reported; therefore background/regional conditions are not understood for the site.</p>	<ul style="list-style-type: none"> • The proponent should clarify whether groundwater monitoring well MW103 is located near the West Dam, or upgradient of the Middle Dam. • The proponent should clarify whether the background groundwater monitoring well MW104 was sampled in 2024. Groundwater quality data for this well (if any) should be provided.



3.3 Beaucage Mines Property, Manitou Islands, North Bay, ON (February 29, 1956).

This document provided information on the Beaucage Mines radioactive outcrops, contextual information surrounding the geophysical and exploration activities that occurred at the site prior to mining, financial information and ore deposit compositions and associated ore characterization work. An estimated 7300 tonnes (1955) and 8820 tonnes (1956) of ore was moved from Newman Island to the pilot mill site (P. 33, 35). 1718 tonnes of ore was treated at the pilot treatment plant in 1956, and resulting product was shipped to the tails. It was also noted that the Beaucage Mine contained the first columbium (niobium) deposit to be developed in North America, and that no standardized analytical procedures for columbium had been established (P. 45).

The information was of limited use for the purposes of this review, and did not provide useful information regarding the radioactivity of tailings material from the Beaucage Mine.

4. Summary of Key Review Findings

The review found that the CNSC regulatory report was lacking detail and sufficient supporting information to communicate inspection results, the rationale for conclusions, potential environmental concerns and implications of these concerns, and the actions required or requested by licensees to remedy concerns. Most concerns identified in HESL's previous review of CNSC's regulatory reporting (HESL, 2018) did not appear to have been resolved, and many concerns at the Agnew Lake site have continued or perhaps worsened during the current reporting period. Although the Agnew Lake annual report prepared by the Ministry of Mines was generally informative and provided a good summary of monitoring conducted, it was unclear on the resulting environmental effects (potential impacts) of exceedances in soil, surface water, and groundwater to the surrounding environment, whether additional monitoring had been conducted to delineate impacts, and whether the Ministry of Mines was committed to resolving concerns and monitoring concerning trends (particularly in groundwater) into the future.

CNSC's regulatory role and responsibility were not well-defined. Identified concerns at the Agnew Lake site did not appear to be known to CNSC based on their regulatory report, and no enforced compliance or mitigative/remediation action appeared to have been made. It was not understood how the Ministry of Mines would be monitored by the regulators for addressing environmental concerns, if at all. Given that niobium tailings are being currently transported and stored at the Agnew Lake TMA, it did not appear that a response plan had been prepared (or was not publicly available at the time of this review). Although the Ministry of Mine's presentation on September 11, 2024 provided some detail on temporary (interim) environmental protection measures for tailings deposition, no specifics on final construction and perimeter controls were provided, nor were any formal engineering plans available for review. It was also noted that the accessibility of information and the level of communication seem to have declined since the previous reporting period, and previous comments on communication improvements (HESL, 2018) appear to have been largely ignored.

Increased clarity and transparency in communication from CNSC is a key recommendation of this review. CNSC provided an evaluation of 'satisfactory' for the Agnew Lake, but CNSC's rationale and supporting



evidence for this evaluation was not provided; nor was a specific reference to publicly available information (i.e., the Ministry of Mine’s annual reports for the three-year reporting cycle) provided to substantiate CNSC’s findings, and more robust technical information, such as specific monitoring and inspection data, was not provided from the 2023 assessment period. CNSC’s ambiguous regulatory oversight role over the Agnew Lake site, and other decommissioned uranium mines in Ontario, does not ease public concern and is not sufficiently protective of the public.

Unresolved potential sources of contaminants at Agnew Lake, and outstanding monitoring and reporting concerns include:

- Surface water, groundwater, sediment, and soil CoPC exceedance concerns around the Agnew Lake TMA;
- Data quality concerns (suspected sampling error during Middle Dam surface water sampling);
- Ongoing care and maintenance concerns of the Agnew Lake tailings cover, including erosional concerns on the East Barrier Dyck, and a lack of maintenance activities;
- Unknown effects from the import of niobium rock from the Beaucage Mine; and,
- A lack of publicly-available environmental monitoring reported in advance of the niobium relocation project, which is currently ongoing.

Limited information was provided on the response to the potential contaminant sources (e.g., uranium exceedances in groundwater upgradient of middle dam and at the west dam; several CoPC exceedances in soil) at the Agnew Lake site, and the results of actions (if any) were not reported in the documents reviewed. It was unclear if CNSC was aware of these potential concerns, and any responses/actions required by the regulator (as well as any regulatory follow-up) to these concerns were unclear.

An evaluation of the key objectives of the review for the Township are summarized in the table below:

Evaluation Question	Review Comment
Is CNSC’s Regulatory Oversight Report adequately and effectively reflecting the Agnew Lake information found in the annual report prepared by the Ministry of Mines?	The report generally provided a reasonable level of information from 2023 environmental monitoring for CNSC to evaluate, however, insufficient information regarding the licensee’s response to exceedances across the site were not provided. There were also several surface water and groundwater monitoring stations where not all parameters were analyzed. Insufficient information was provided on the potential effects of niobium tailings relocation to the site, which was stated to be provided in an April 2024 update report; the April report was not provided.
Is it possible that the Agnew Lake Tailings Management Area is contaminating the surrounding environment with uranium, heavy metals, and/or other contaminants of potential concern?	The Agnew Lake 2023 Annual Report indicates exceedances of: <ul style="list-style-type: none"> • Uranium in soils adjacent to the TMA and sediments to the west of the creek; • Arsenic in sediment around the TMA; • Uranium in groundwater upgradient of the middle dam in June 2023;



	<ul style="list-style-type: none"> • Cobalt and uranium in spring surface waters below the West Dam; • Uranium in fall surface waters below the West Dam; • Several metals in surface waters from the Middle Dam (suspected sampling error); • Iron in upstream and downstream surface waters in spring; • Cyanide in Middle Dam surface waters in the spring; and, • Radium in the West Dam surface waters in the fall. <p>Therefore, it is apparent that the Agnew Lake TMA is an active source of CoPC loading to the environment.</p>
<p>Are conditions at the Agnew Lake Tailings Management Area effectively protecting surrounding waterways, which are a source of drinking water for the Township?</p>	<p>Several exceedances of CoPCs in soil, sediment, surface water, and groundwater across the TMA do not appear to have been addressed or delineated by the licensee. Further, concerns regarding the condition of the tailings cover and documented erosion concerns at the East Barrier Dyck demonstrate that the TMA is a likely source of ongoing CoPC loading to the environment, as evidenced by surface water exceedances at downstream West Dam and Middle Dam sampling locations, and groundwater uranium exceedance at the Middle Dam.</p> <p>Groundwater sampling across the site was insufficient, as only the Middle Dam monitoring well was sampled in June 2024, and was analyzed solely for uranium (exceeding Ontario Regulation 153/04 standards). Impacts to shallow groundwater may therefore extend further downgradient towards Ministic Creek (which eventually drains to the Spanish River) and/or to the west in John Creek. A complete conceptual pathway screening will be subsequently completed by HESL, to evaluate whether any complete surface water or groundwater pathways exist between the Agnew Lake site and Township drinking water sources (Spanish River, Agnew Lake).</p>
<p>Is the ongoing transportation of low-level radioactive material (niobium tailings) from the Beaucage Mine a threat to the environment?</p>	<p>Insufficient information regarding the relocation of niobium tailings was provided in the CSNC Regulatory Report or the Agnew Lake Report. The September 2024 presentation given by the Ministry of Mines provided a high-level summary of temporary environmental protection measures that would be implemented during the relocation work; However, interim and final construction/work plans, environmental monitoring plans, and the conceptual site model/risk assessment (to be completed by Ecometrix in April 2024), did not appear to be publicly available, and were not reviewed. Given that niobium tailings from the Beaucage Mine are actively being transported to the site, and disposal may have been</p>



	<p>completed in October 2024, it is unclear why these documents were not made available in advance of niobium tailings relocation.</p> <p>Therefore, it is unclear if niobium tailings transportation poses a threat to the environment.</p>
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Several unresolved potential sources of CoPCs at the Agnew Lake TMA present a potential concern to residents in the Township of Nairn and Hyman, and may be impacting drinking water resources in the Agnew Lake area. Insufficient monitoring of the Agnew Lake site, documented exceedances in groundwater, surface water, and soil around the TMA, and limited information surrounding interim and final environmental protection measures during niobium tailings relocation, do not ease public concerns and are not sufficiently protective of the public.

Impacts on ecological receptors, including surface waters sourced for drinking water (Spanish River, Agnew Lake), and groundwater used as drinking water for residents in the Agnew Lake area, will be further investigated by HESL using a conceptual flow pathway screening from the Agnew Lake TMA to drinking water sources. This technical review should be read in conjunction with the resulting conceptual flow pathway screening, to understand the regulatory context, existing environmental monitoring and reporting shortcomings, and limitations of the information gathered.

5. Closing

Thank you for the opportunity to conduct this technical review! If you have any questions or concerns, please contact Emily Ham or David Leeder.

6. References

Hutchinson Environmental Sciences Ltd. (2018). Technical review of the Canadian Nuclear Safety Commission's "Regulatory Oversight Report on Uranium Mines, Mills, Historic and Decommissioned Sites in Canada" (2017) and associated information. Letter for Northwatch: November 19, 2018.

Ministry of the Environment (2011). Soil, ground water and sediment standards for use under Part XV.1 of the Environmental Protection Act. April 15, 2011.

