

CNL Revised Proposal to Change PHAI Cleanup Criteria

As part of ongoing dialogue with regulators, Canadian Nuclear Laboratories (CNL) will revise its application to the Canadian Nuclear Safety Commission (CNSC) to amend the Cleanup Criteria for the Port Hope Area Initiative (PHAI). This change will remove the reference to the uranium criterion (which will remain at 23 parts per million (ppm)) and propose an increase in the level for arsenic from 18 ppm to 56 ppm.

What is the PHAI Cleanup Criteria?

The past refining practices of former Crown corporation, Eldorado Nuclear Limited, generated waste products comprised of sand, silt, soil and fill intermixed with uranium and radium processing residues and industrial wastes.

When identifying low-level radioactive waste (LLRW) during testing, four elements are considered “signature parameters” - uranium, radium-226, thorium-230 and arsenic.

The Cleanup Criteria (CC) sets the levels to which CNL will clean up each of these radioactive and non-radioactive elements found in areas contaminated with LLRW.

How were the current CC developed?

In 2001, the federal government engaged consultants to assist in identifying the CC with the requirement that each element could be compared to known/published criteria and, in accordance with the Legal Agreement, all remediated lands could be used for “foreseeable unrestricted use”.

Based on information available at the time, the criteria were finalized as follows:

Arsenic	18 ppm
Uranium	23 ppm
Radium-226	0.29 (Bq/g)
Thorium-230	1.16 (Bq/g)

Why is CNL proposing to change the CC?

Since PHAI testing began in 2012 in Port Hope, CNL has collected more than 25,000 soil samples and determined that a significant number of property cleanups are being driven by the conservative criteria for arsenic in soil.



Many residents have expressed dissatisfaction with the length of time it has taken to clean up their properties caused, in part, by the need to “chase” arsenic to meet the very low criteria level. The broader community has raised concerns about the unintended impact of the project on the natural environment, including a significant loss of trees in urban Port Hope.

To avoid further lengthy delays and significant environmental damage, CNL is recommending a change to the CC for arsenic.

JOIN THE CONVERSATION!



CNL will continue to provide opportunities for Indigenous communities and organizations, Port Hope residents and key stakeholders to learn more and provide feedback on the proposed revision to the PHAI Cleanup Criteria.

Visit PHAI.ca for more information on the application process, engagement opportunities, providing your feedback and how you can participate in the CNSC review hearing.

PHAI Cleanup Criteria: Arsenic

Arsenic is a chemical element found in nature and in manufactured products. While organic arsenic is generally ingested through food, inorganic arsenic is more often obtained from environmental exposure, e.g. soil, water and air.

What levels of arsenic are typically found in the LLRW in Port Hope?

Specific levels of each of the “signature parameters” will vary by location and can range from below background (naturally occurring) to **8,900 parts per million (ppm) for arsenic**.

What is the revised proposal for the level of arsenic?

The CC for arsenic was originally set at a **conservative level of 18 ppm** to align with generic, province-wide standards at the time, considered to be the upper-limit of “typical” background concentrations in Ontario soils.

While 18 ppm is typical, actual levels of arsenic concentrations in soil can vary due to local geologic conditions, and may be higher than 18 ppm.

CNL has revised its original recommendation to change the level for arsenic from 18 ppm to 100 ppm and will now **recommend the new level of 56 ppm**.

Why is CNL revising the first proposed level for arsenic?

This revised level of 56 ppm is based on the risk guideline calculated by Health Canada’s human health and ecological risk assessment model. Removing the proposal to change the CC level of uranium allows regulators to focus on the evaluation of arsenic which, as the only parameter mobile in soil, has the most impact on the extent of a cleanup.

The proposed new level will meet the intent of the Legal Agreement, allowing all properties to be used for “all current and foreseeable unrestricted uses.”

Is the proposed new level safe for human health?

Arsenic criteria was reviewed in 2019 when CNL commissioned risk assessment experts, Wood and

Intrinsik, who frequently work with Environment Canada, Health Canada and Public Health Ontario, to examine arsenic levels in Port Hope soils and similar communities with elevated arsenic concentrations in soil, and recommend a CC level that would be protective of human health and the environment.

The study concluded with a high degree of confidence, that arsenic levels up to 100 ppm in soil are safe for human health and are not expected to result in an increase in exposure risk.

What is the process to change the Cleanup Criteria?

In March 2020, CNL submitted an application to the CNSC to amend the PHAI Cleanup Criteria based on information gathered and experience gained from the first two years of cleanup work on residential properties.

The application used an approach of applying risk-based information and weight of evidence to propose alternative cleanup criteria levels for both arsenic and uranium. CNL identified that the original, conservative criteria levels of 18 ppm for arsenic and 23 ppm for uranium resulted in unintended negative effects on the community and natural environment.

CNL believes the revised number of 56 ppm for arsenic will still assist in the reduction of cleanup times on properties in Port Hope and potentially exempt a number of properties from the PHAI cleanup, while still being protective of human health and the environment.

The original application was supported by an extensive awareness and engagement campaign to inform and solicit feedback from the public as well as Indigenous communities and organizations.

CNL will continue to work closely with the Municipality of Port Hope to ensure Council and staff are kept informed. Feedback from regulators such as the Health Canada is being incorporated as CNL follows the CNSC application and review process.

A formal CNSC review hearing is anticipated to take place in 2023/2024.

