



Canadian Nuclear Laboratories (CNL) is proposing a change to the PHAI Cleanup Criteria for arsenic

Arsenic is a non-radioactive contaminant associated with historic low-level radioactive waste (LLRW) in Port Hope. Through past practices of refining radium and uranium, former Crown Corporation Eldorado Nuclear Limited generated waste made up of sand, silt, soil, and fill mixed with contaminants. This LLRW was dispersed throughout the Municipality of Port Hope and neighbouring Clarington. As part of Port Hope Area Initiative (PHAI) activities, the waste is being cleaned up and sites remediated to meet specific levels for contaminants as set out in the Waste Nuclear Substance License, the regulatory document overseen by the Canadian Nuclear Safety Commission (CNSC).



What are the PHAI Cleanup Criteria?

The PHAI Cleanup Criteria sets the levels to which CNL will clean up soil in areas contaminated with LLRW.

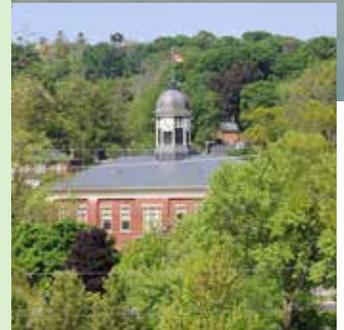
Four contaminants are identified as "signature parameters" for LLRW.

33
As
Arsenic
18 parts per million (ppm)

92
U
Uranium
23 parts per million (ppm)

88
Ra
Radium
0.29 becquerel per gram (Bq/g)

90
Th
Thorium
1.16 becquerel per gram (Bq/g)



How were they developed?

In 2001, the federal government hired consultants to help identify the PHAI Cleanup Criteria during the course of the PHAI Environmental Assessment. The criteria had to be known/published criteria and, in accordance with the Legal Agreement, all remediated lands could be used for "all current and foreseeable unrestricted uses". The criteria were finalized in 2006.

The criterion for arsenic was set at 18 ppm to align with generic,

province-wide standards that are based on the *Ontario Typical Range of Chemical Parameters in Soil, Vegetation, Moss Bags and Snow*, a guidance document written by Ontario Ministry of the Environment, Conservation and Parks.

While Ontario identifies 18 ppm as the typical provincial background level of arsenic in soil, natural levels can vary due to local geologic conditions.



Why is CNL proposing a change?

Through experience cleaning up public and private properties in Port Hope, CNL determined that the cleanup criteria level for arsenic is resulting in more extensive and lengthier cleanups

than originally anticipated. In addition, CNL has collected close to 30,000 soil samples in Port Hope since 2012. Analysis of this soil shows that many property cleanups are being driven by the current cleanup criterion for arsenic in soil (18 ppm).

Further analysis has also shown that the current criteria will create significant unintended project impacts to the natural and built environment, including a noticeable loss of trees in the municipality, unless it is amended.

Feedback about environmental impacts, and the extent of disturbance to individual properties have been received from residents who wish to minimize the impact of the PHAI. A higher PHAI cleanup criterion for arsenic would reduce the amount of soil requiring cleanup and therefore impacts to the community.

What is the proposed criteria for arsenic?

A risk-based approach is being used to identify a potential new cleanup criteria level for arsenic.

- CNL commissioned Canadian risk assessment experts, who frequently work with Health Canada; the Ontario Ministry of the Environment, Conservation and Parks; and Public Health Ontario, to identify a revised criterion for arsenic.
- The experts followed federal risk assessment guidance set by Health Canada to determine the value for the revised criterion and have incorporated data collected in Port Hope to ensure the revised cleanup criterion reflects local conditions.
- Working with Indigenous communities and organizations, multiple federal and provincial agencies adds an element

of rigour that has extended the time frame to determine a new criteria level that is protective of human health and the environment.

- The new level would meet the intent of the Legal Agreement, allowing all residential properties to be used for “all current and foreseeable unrestricted uses.”
- The requested change to the cleanup criterion for arsenic does not remove other provincial regulatory requirements that would apply to lands seeking a Record of Site Condition under the Ontario Brownfield Regulation, O. Reg. 153/04 as amended.

How will the Cleanup Criteria be changed?

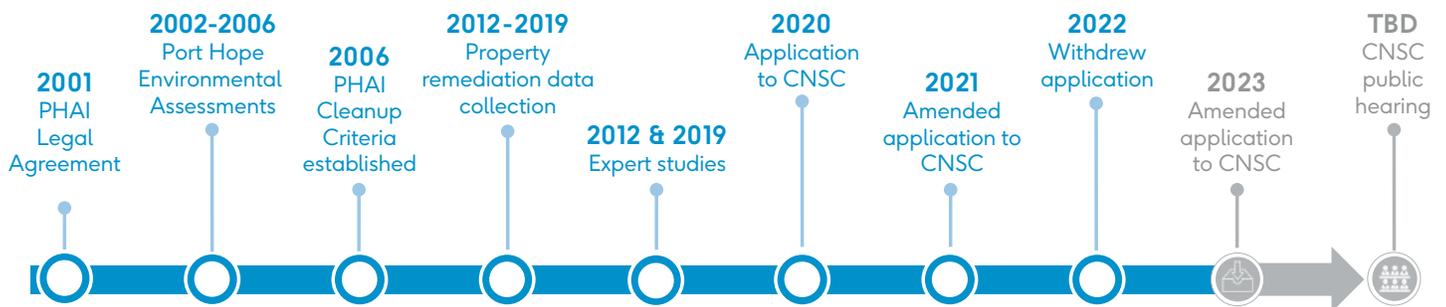
The PHAI Cleanup Criteria are included in the Waste Nuclear Substance License, and as such, any change to the criteria requires that CNL submit a formal license amendment request to the Canadian Nuclear Safety Commission (CNSC).

CNL will submit its application after incorporating feedback on the technical reports from Indigenous communities and

organizations and agencies including the CNSC; Health Canada; Ontario Ministry of the Environment, Conservation of Parks; Public Health Ontario and the Haliburton, Kawartha, Pine Ridge District Health Unit.

CNL works closely with the Municipality of Port Hope to ensure Council and staff are kept informed.

Cleanup Criteria Change Timeline



How can I be involved?

CNL continues to engage with Indigenous communities & organizations; property owners; stakeholders and

the public to provide information on the cleanup criteria and gather feedback.

Should the CNSC accept the application, a public hearing date will be set and communicated to Indigenous communities and organizations, stakeholders and the public. Anyone interested will have the opportunity to submit an intervention directly to the CNSC regarding the amendment application.

These interventions will be considered by the CNSC Commission panel at the hearing and will become part of the public record.

Join the Conversation!

Visit **PHAI.ca** for more information on the application process, engagement opportunities, providing your feedback to CNL.

