Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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Supplementary Information

Presentation from the Radiation Safety Institute of Canada

Renseignements supplémentaires

Présentation de l'Institut de radioprotection du Canada

In the Matter of the

Canadian Nuclear Laboratories (CNL)

Application from the CNL to amend its Chalk River Laboratories site licence to authorize the construction of a near surface disposal facility

Commission Public Hearing
Part 2

May 30 to June 3, 2022

À l'égard des

Laboratoires Nucléaires Canadiens (LNC)

Demande des LNC visant à modifier le permis du site des Laboratoires de Chalk River pour autoriser la construction d'une installation de gestion des déchets près de la surface

Audience publique de la Commission
Partie 2

30 mai au 3 juin 2022

Canada

Issues of Concern with the Near Surface Disposal Facility

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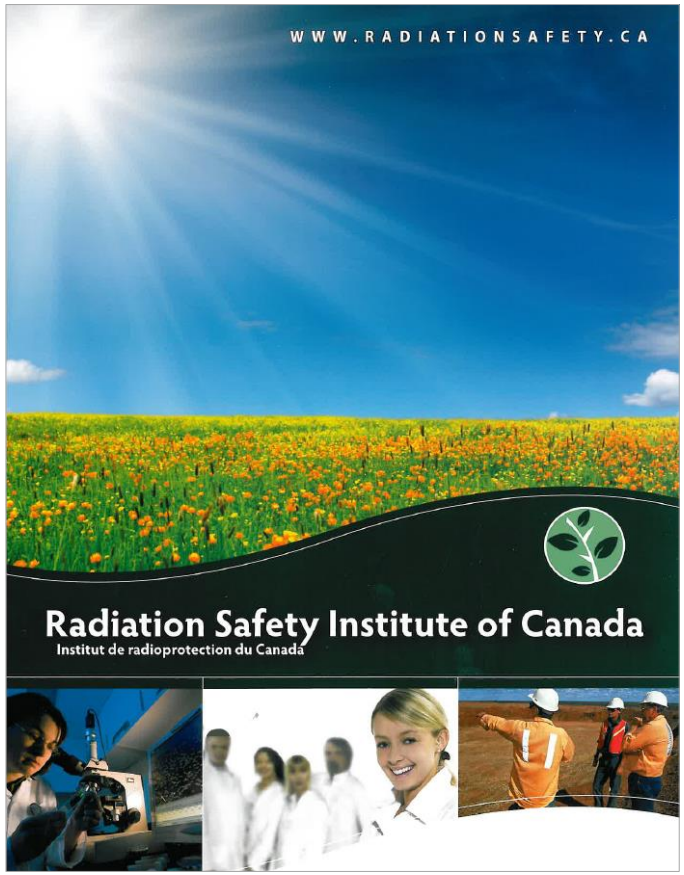
1 June 2022

Outline

- The Radiation Safety Institute of Canada
  - Who we are
  - What we do
- Community concerns to be addressed:
  - Radioactive material and waterways
  - Failure of the base liner scenario

Who We Are

- Independent
- Not-for-profit
- Charitable organization
- Sole concern is radiation safety



What We Do

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Radiation Safety Institute of Canada
Institut de radioprotection du Canada

Education

- Professional Certificate Courses in Radiation Safety
- Worker and Awareness Education
- Tailor-made Courses

Consulting

- Radiation Safety Workplace Audits
- CNSC Licence Support
- EMF Surveys and X-Ray Equipment Inspections

Laboratory

- Radon testing
- Personal Alpha Dosimetry
- Instrument Calibration
- Leak Testing

Awareness

- Free Information Service in Radiation Safety
- Public Education
- Public Policy

Free of charge information service in radiation safety:

Toll free line: 1-800-263-5803
Website: www.radiationsafety.ca
Email: info@radiationsafety.ca

Review of CNL material

- much of the material deals with such issues as dust management, limiting of idling of vehicles, disturbances to local fish and animal species, etc.
- while the potential environmental impact of building the containment mound is in focus, a key issue of public concern – ***human radiation exposure*** – is *not sufficiently explored* by the NSDF proponent

Public concerns differ from CNL scenarios

- it is natural for the public to be concerned with the potential for *radioactive* contamination of waterways
- an evaluation of the impact on human health of any accident scenario leading to a significant portion of the radioactive waste being deposited into the Ottawa River or other waterway is not provided in the publicly available material

Scenario omission

- it is possible that, given the location and composition of the engineered mound, such a scenario was not explored on the grounds of it being deemed very “unlikely”
- the fact remains that the CNL property is bounded on one side by the Ottawa River
- the omission of such a scenario may leave unanswered questions, that members of the public consider important

Why consider a "worst case" scenario?

"That a particular specified event or coincidence will occur is very unlikely. That some astonishing unspecified events will occur is certain." (David G. Myers)

Why consider a “worst case” scenario?

- Let’s not forget - people are capable of doing surprising things.

Suggested for further consideration

- What if: instead of institutional control lasting for “300 years”, it is lost immediately after the mound is completed?
- What if: through human error/ or a deliberate provocation the radioactive waste is deposited right into the river?
- What would be the short and long term affects on human health of depositing this material into the river?

Back of the envelop calculation

- RSIC performed a calculation suggesting that, if all the activity were released to the Ottawa River over the course of one year, the maximum dose to an individual 500 m from the discharge point would be 130 mSv
- If confirmed by a detailed calculation – this could support CNL's project
  - all activity will **not** be released
  - Dose to areas further downstream would be much less
  - Co-60 is the most important in generating dose and has the shortest half-life of the isotopes involved - dose would decline each year
  - 130 mSv, while high, is not a "disaster" level

Suggestion for further consideration

- What if: the liner for the mound turns out to fail within 1 year of closure?
- What if: the liner dissolves?
- What would be the short and long term affects on the health of surrounding human populations?

Conclusion

- By **not** reporting on a possible worst case scenario for loss of radioactive material to waterways, the public is left to its own devices in their decision making process.

Conclusion

Only by addressing the key worst case scenarios is it possible to alleviate public concerns:

- what is the potential impact of those worst case scenarios on human health. For example, it needs to be indicated whether 1 person might get an induced cancer or if 1,000,000 people might get an induced cancer
- the public needs to understand why the precautions taken by the proponent would prevent these scenarios from coming to fruition

Thank you

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