Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

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Oral presentation

Written submission from Bruce Power

Exposé oral

Mémoire de Bruce Power

In the Matter of the

À l'égard des

Canadian Nuclear Laboratories (CNL)

Laboratoires Nucléaires Canadiens (LNC)

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

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

Commission Public Hearing
Part 2

Audience publique de la Commission
Partie 2

May and June 2022

Mai et juin 2022

Canada

April 11, 2022

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

Attention: Canadian Nuclear Safety Commission (CNSC) Tribunal Chair and Commission Members

Re: Bruce Power's Intervention in Support of Canadian Nuclear Laboratories' application for an amendment of the Nuclear Research and Test Establishment Operating Licence for Chalk River Laboratories (NRTEOL-01.00/2028), to add a new Class 1B Nuclear Facility, the Near Surface Disposal Facility, to the Chalk River Laboratories licensing basis

Formed in 2001, Bruce Power is an electricity company based in Bruce County, Ontario. Powered by its people, Bruce Power's 4,200 employees are the foundation of its accomplishments. Bruce Power employees are proud of the role that they play in safely delivering clean, reliable, low-cost nuclear power to families and businesses across the province. Having established strong roots in Ontario, they are committed to protecting the environment and supporting the communities in which they live.

One of Bruce Power's most significant contributions to environmental protection is the reduction of greenhouse gas emissions (GHGs). Nuclear power is a key contributor to Ontario's low-emitting electrical grid and critical to achieving Canada's goal of net-zero GHGs by 2050. While nuclear power generation produces no GHGs, Bruce Power has committed to further minimizing and offsetting emissions throughout its life cycle, including from its vehicles, machinery, buildings, and equipment, to be able to achieve net-zero GHGs by 2027.

Like Bruce Power, Canadian Nuclear Laboratories (CNL) applies a life cycle management lens to its GHG emissions. The solid low-level waste that is targeted for disposal in the Near Surface Disposal Facility (NSDF) is a by-product of the production of the medical isotopes that have been used in the diagnosis and treatment of over one billion patients, but also the numerous clean energy developments that have contributed to the reduction of Canada's GHG emissions for many years. Looking ahead, CNL has also confirmed that the NSDF Project will not result in significant GHG emissions.

Consistent with Bruce Power's efforts to minimize GHG emissions, and to lead the world in the fight against climate change, Bruce Power supports CNL's application to amend its Chalk River Laboratories site licence to authorize the construction of the NSDF for solid low-level radioactive waste management. CNL will assist Ontario in meeting its GHG targets through past contributions to clean energy, but also by making provisions for the continued safe, reliable management of radioactive waste, and any associated GHG emissions.

With the above as context, we would like to draw your attention to key areas of CNL's environmental assessment [1.], and licence application [2.], where they will leverage their 70 years of experience and expertise in radioactive waste management as they apply industry best practice to the NSDF Project (see attachment for more details):

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I. **Mitigation of Environmental Effects:** Having been the subject of numerous environmental assessments over the years, the Chalk River Laboratories (CRL) site is well studied and understood. That understanding has strengthened CNL's ability to accurately predict the environmental effects of the NSDF Project and to propose the mitigation measures necessary to avoid any potential adverse effects. As an example, surface and groundwater flow, and the potential for contaminant migration, are very well understood at the CRL site.

Based on CNL staff's understanding of surface and groundwater flow, it was determined that a permanent disposal solution is the preferred means of protecting environmental features like the Ottawa River. The proposed Engineered Containment Mound will also be located well above the flood plain and away from the Ottawa River. In addition, the multi-layered design will physically isolate the waste from the surrounding environment, and ensure that any liquid that comes into contact with the waste will be collected and treated.

The Environmental Assessment [1.] concluded that the NSDF Project is unlikely to result in significant adverse environmental effects given the proposed mitigation measures. Nevertheless, CNL plans to expand its extensive environmental monitoring network to measure any potential releases to the environment.

II. **Safe, Reliable, Long-term Operation:** The Engineered Containment Mound (ECM) that is proposed for the containment and isolation of CNL's solid low-level waste is based on technologies and materials with a long history of safe, reliable performance. The ECM's multi-layered base liner includes a compact clay layer that is thousands of years old and expected to last thousands of years more. The natural materials that make up the perimeter berm are also expected to function effectively over their natural lifespan of thousands of years.

As reinforced in CNL's application, responsible waste management is life cycle management, considering waste generation through to disposal. With a capacity of 1,000,000 m^3, the mound will be able to accommodate current and future disposal requirements over the next 50 years. During that 50 year period, CNL will also ensure, through well-established waste management processes, that only the waste that is appropriate for disposal in the NSDF is accepted for disposal. The NSDF will have a design life of greater than 550 years, following which short-lived radionuclides will have decayed to natural background levels.

CNL conducted scientific evaluations [2.] of a number of different scenarios to determine their potential effects on workers, Indigenous Peoples and the public, and to demonstrate that the NSDF Project will not pose a risk to human health and safety during the life cycle of the facility. These safety assessments showed no unacceptable risk during construction, operation, closure, or post-closure.

III. **Strong Community and Indigenous Engagement:** CNL has engaged with local communities and Indigenous Peoples throughout the Environmental Assessment of the NSDF proposal, and continues to establish long standing relationships with Indigenous Communities and Organizations. CNL has maintained a high degree of transparency, making the public aware of site activities through its Public Information Program. CNL has also undertaken numerous engagement activities dedicated to the NSDF Project, ranging from information sessions to site visits and virtual events. Dedicated information sessions and events have also been arranged for the purpose of engaging local Indigenous Peoples.

While CNL's waste has been managed in keeping with industry best practice, a permanent disposal solution has been identified as the preferred means of protecting the environment. CNL's waste is therefore being transitioned from a temporary storage to a permanent disposal solution. The proposed ECM is among the best available technologies to be employed in the disposal of solid low-

level waste and, as a localized solution, it avoids the production of GHG emissions that would accompany waste transport.

Given all of the above, it is Bruce Power's opinion that the construction and operation of the NSDF for the disposal of solid low-level radioactive waste, will provide a safe, reliable, engineered facility to ensure that the waste will not pose a risk to workers, the public or the environment. With more than seven decades of radioactive waste management experience, and a strong commitment to the application of industry best practice, CNL is well positioned to safely and reliably operate the NSDF well into the future. Bruce Power therefore supports the recommendation that the new Class 1B Nuclear Facility, the Near Surface Disposal Facility, be added to the CRL licensing basis.

Thank you for the opportunity to share our views on the CNL licence application. If upon reviewing this letter you have any questions, please feel free to contact Heather Kleb, Senior Strategist, Isotopes and Site Energy Development, at 519-386-1671.

Regards,

James Scongack
Chief Development Officer and Executive Vice-President, Operational Services
Bruce Power

REFERENCES

[1.] Canadian Nuclear Laboratories, 2022. Near Surface Disposal Facility, Environmental Impact Statement, Ref. 232-509220-021-000.
[2.] Canadian Nuclear Laboratories, 2022. Commission Member Document for Licensing Decision, Chalk River Laboratories Site Licence Amendment to Authorize the Construction of the Near Surface Disposal Facility, Ref. 232-508760-REPT-002, Rev. 0.