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Written Submission from the Sierra Club Canada Foundation and TerraHumana Solutions

Mémoire de la Fondation Sierra Club Canada et TerraHumana Solutions

In the matter of the

À l'égard des

Canadian Nuclear Laboratories

Laboratoires Nucléaires Canadiens

Application to amend the licence and licensing basis for the Gentilly-1 Waste Facility

Demande concernant la modification de leur permis et du fondement d'autorisation pour l'installation de gestion des déchets de Gentilly-1

Hearing in writing based on written submissions

Audience par écrit fondée sur des mémoires

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Recommendations for the Decommissioning of the Gentilly-1 Waste Facility

Prepared for: Canadian Nuclear Safety Commission

By: TerraHumana Solutions and Sierra Club Canada Foundation

FONDATION SIERRA CLUB CANADA FOUNDATION

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Land Acknowledgement

TerraHumana Solutions is based in Tiohtià:ke/Montréal, where the Kanien'kehá:ka Nation is recognized as the custodians of the lands and waters. Tiohtià:ke/Montréal is historically known as a gathering place for many First Nations. Today, it is home to a diverse population of Indigenous and other peoples. We respect the continued connections with the past, present and future in our ongoing relationships with Indigenous and other peoples within the Montreal community, and we are grateful to live and work on these lands.

The Sierra Club Canada Foundation is a national registered charity with four chapters: Atlantic, Québec, Ontario, and Prairie. Given this wide reach, we acknowledge the contributions of First Nations, Inuit, and Métis peoples as stewards of the lands now known as Canada. Our members for this project were based more specifically in Nova Scotia and Ontario. We therefore acknowledge Mi'kma'ki, the traditional territory of the Mi'kmaq, and we recognize the thousands of years spent living, travelling, teaching, and trading on these lands. We also acknowledge the Anishinaabe Algonquin Nation, who have lived on their traditional territory for thousands of years, and whose culture and history is inextricably tied to these lands. We are grateful to live and work on these lands.

The Gentilly-1 Waste Facility is located on the traditional territory of the W8banaki Nation. W8banaki means People of the Dawn, and members of this Nation have spent thousands of years closely connected to the land, through fishing, hunting, gathering, and, eventually, cultivation of plants like corn, beans, and squash. We are grateful for the opportunity to have worked on a project closely related to these lands.

Executive Summary

The Gentilly-1 Waste Facility (G1WF) is a closed nuclear reactor in Bécancour, Quebec. Canadian Nuclear Laboratories (CNL), which operates the G1WF, has submitted a licence amendment application to the Canadian Nuclear Safety Commission (CNSC). If approved, the amendment would allow CNL to proceed with the final phase of G1WF decommissioning, consisting of dismantlement, decontamination, and site remediation. TerraHumana Solutions and the Sierra Club Canada Foundation (SCCF) received participant funding from the CNSC to review the licence amendment application and associated documents and to prepare an intervention for the Commission hearing.

Our research for our intervention included a review of the literature and relevant documents, attendance at relevant webinars and meetings, and consultation with experts, stakeholders, and rights-holders. Our findings fall into five main categories: Procedural issues, Contamination, Waste management, Indigenous peoples, and Impact assessment.

We found that various procedural issues complicated participation in the G1WF Decommissioning Project (the Project) for both the public and participant funding recipients. These procedural issues include a lack of access to relevant documents, a lack of opportunity for independent review, and the Project hearing being conducted exclusively in writing.

We also found that the radionuclide inventory for the G1WF is incomplete, omitting radionuclides such as calcium-41 and chlorine-36. This oversight risks contaminating the soil and the St. Lawrence River and exposing the public, workers, and species at risk to radiation. Furthermore, we found that scoping out waste management for the Project is inappropriate, given that poor waste management may adversely affect the environment and Indigenous rights. It is crucial that the Project include meaningful engagement with all Indigenous communities that it may affect. Lastly, we found that the current provisions of the *Impact Assessment Act* are insufficient to prevent or mitigate significant adverse impacts of the Project.

Based on our findings, we recommend that the Project hearing be held in person, that the Commission find that the Project is likely to cause significant adverse environmental effects, and that the Commission refuse approval of the licence amendment until CNL provides a detailed decommissioning plan addressing current gaps.

1 Introduction and Context

In October 2025, the Sierra Club Canada Foundation (SCCF) and TerraHumana Solutions received participant funding from the Canadian Nuclear Safety Commission (CNSC) to comment on the licence amendment for the Gentilly-1 Waste Facility (G1WF). The SCCF is a national environmental organization dedicated to protecting ecosystems, advancing climate action, and promoting environmental policies through advocacy, education, and community engagement. TerraHumana Solutions is an environmental consulting and research firm with 30 years of experience in environmental monitoring, ecological risk assessments, and the biological sciences, supporting evidence-based environmental decision-making. Through this intervention, the SCCF and TerraHumana Solutions intend to provide the CNSC with recommendations for the safe and transparent decommissioning of the G1WF.

The decommissioning of the G1WF project (hereafter, the Project) involves a licence amendment to proceed with the final phase of decommissioning at the G1WF. Under the *Impact Assessment Act* (IAA), the Project is considered a non-designated project on federal lands or outside Canada. It is therefore subject to section 82 of the IAA, which provides that such a project cannot proceed unless the relevant federal authorities determine that it is not likely to cause significant adverse environmental effects, or that it is likely to cause such effects and that they are justified under the circumstances (IAA, 2019, s. 82; Impact Assessment Agency of Canada [IAAC], 2025).

The G1WF is in Bécancour, Québec, on land owned by Hydro Québec. It is owned by Atomic Energy of Canada Limited (AECL) and operated by Canadian Nuclear Laboratories (CNL). It neighbours the Hydro Québec-owned Gentilly-2 Waste Facility on the south bank of the St. Lawrence River (Figure 1). The Project is considered a project on federal lands because the facilities are owned by AECL, a federal Crown corporation. As such, the CNSC and AECL are considered the federal authorities for the Project, while CNL is the proponent (IAAC, 2025).

The G1WF was formerly the Gentilly-1 Nuclear Generating Station, a nuclear power station with a prototype Canada Deuterium Uranium (CANDU) Boiling Light Water (BLW) reactor that produced 250 MWe of electrical output (CNL, 2024a, p. 10). Construction began in 1966, and it entered service in 1972, operating intermittently until 1978 for a total of 183 effective full-power days (CNL, 2024a, p. 45; CNL, n.d.). The first phase of decommissioning, Establishment of a Safe Shutdown State, was completed in 1986, and since then, the G1WF has been in Phase 2 Decommissioning, Storage with Surveillance (SWS) (CNL, 2024a, p. 45).

The license amendment that is the subject of the Project would allow CNL to execute Phase 3 Decommissioning, Decommissioning and Demolition (D&D). This includes dismantling all AECL-owned buildings and structures and sending the resulting waste to storage, disposal, or recycling facilities (CNL, 2024a).

Following a July 2026 hearing, the CNSC's independent Commission will decide whether to approve the licence amendment and determine whether the Project is likely to cause significant adverse environmental effects and whether the CNSC has upheld the constitutional rights of Indigenous peoples. The July 2026 hearing is based solely on written submissions (CNSC, 2026a).

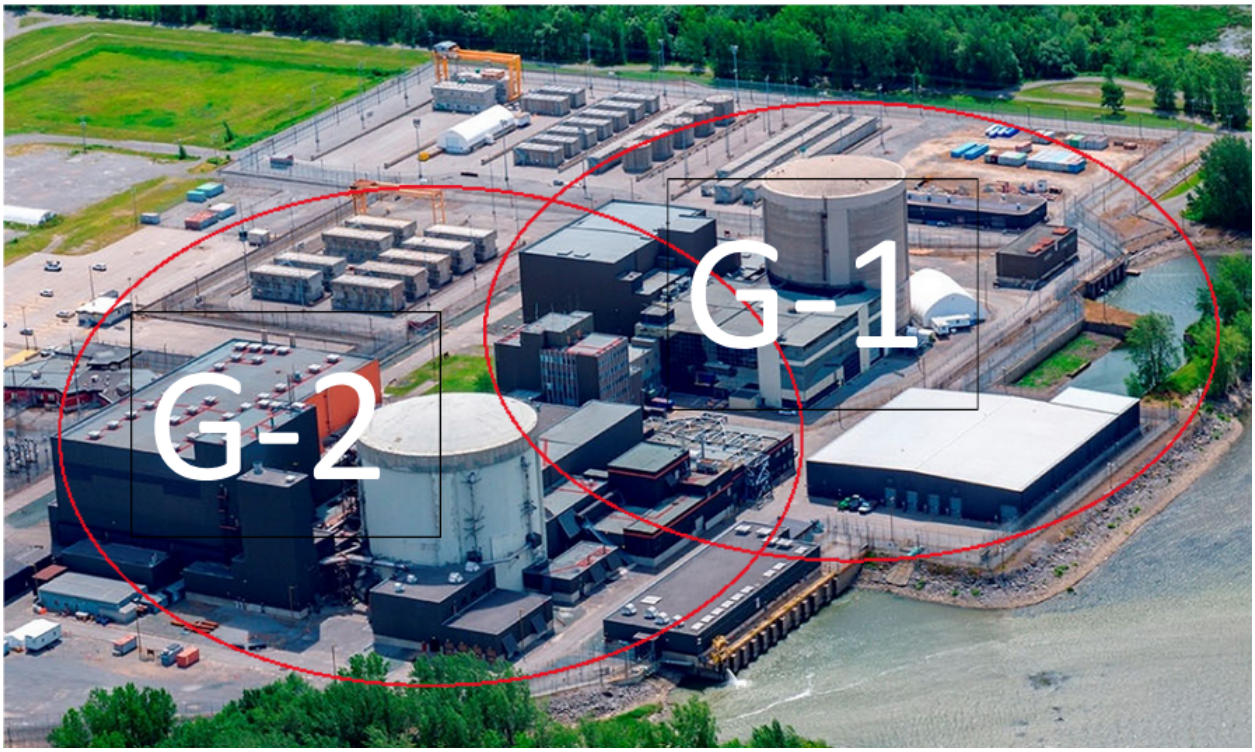

Figure 1. The Gentilly site, comprising the Gentilly-1 and Gentilly-2 Waste Facilities, is on the south shore of the St. Lawrence River in Bécancour, Québec.

2 Goal and Objectives

The goal of this intervention is to provide the CNSC with recommendations on decommissioning the G1WF to help ensure the safe and transparent decommissioning of the facility.

The objectives of this intervention are to:

1. Review documentation provided by the CNSC
2. Share research on the potential impacts of the G1WF decommissioning
3. Develop recommendations for decommissioning the G1WF while safeguarding the environment, wildlife, human health, and Indigenous rights

3 Methods and Approach

The research and data collection for this intervention relied on three primary strategies:

1. A comprehensive review of peer-reviewed literature, regulatory frameworks, and project-specific documents;
2. Attendance at relevant webinars, seminars, and meetings; and
3. and engagement and consultation with experts, stakeholders, and rights-holders.

Literature and desktop review. To evaluate the impacts of radionuclides on wildlife and the environment, and to contextualize global and domestic nuclear decommissioning practices, keyword searches were conducted using the Web of Science database. For the decommissioning analysis, peer-reviewed literature was supplemented by publicly available reports, government documents, and policies, including the World Nuclear Industry Status Report 2025 (Schneider et al., 2025) and Canada's Policy for Radioactive Waste Management and Decommissioning (Natural Resources Canada, 2023).

Project-specific documents and regulatory data were retrieved from the Canadian Nuclear Safety Commission (CNSC) and Canadian Nuclear Laboratories (CNL) websites. While all hearing documents associated with the July 2026 CNSC hearing were reviewed, a specific subset was prioritized for detailed analysis (Table 1). Additional legal and regulatory frameworks were consulted to establish the necessary compliance context for the Project (Table 2). Finally, information gathering was supported by attendance at three relevant webinars between February and March 2026 (Table 3).

Ecological assessment. To assess potential ecological sensitivities, the provincial database managed by the *Centre de données sur le patrimoine naturel du Québec* (CDPNQ) was consulted. This search verified the documented presence of at-risk species within a 5-kilometre radius of the G1WF.

Table 1. Summary of the G1WF Decommissioning July 2026 hearing documents consulted by the SCCF and TerraHumana Solutions, which we consider most relevant to the present intervention.

Document	Author	Date Available to SCCF and TerraHumana Solutions
Gentilly-1 Waste Facility Detailed Decommissioning Plan Volume 1 - Program Overview	Canadian Nuclear Laboratories	November 25, 2025
Request to Amend the Licence and Licencing Basis for the Gentilly-1 Waste Facility	Canadian Nuclear Laboratories	November 25, 2025
CMD 26-H100 - Submission from CNSC Staff - Canadian Nuclear Laboratories Ltd. Request to Amend the Licence and the Licensing Basis for Gentilly-1 Waste Facility	Canadian Nuclear Safety Commission	April 20, 2026
Gentilly-1 Waste Facility Decommissioning Public Communications Supplementary Report (2023 January - 2026 February)	Canadian Nuclear Laboratories	April 23, 2026
Gentilly-1 Waste Facility Decommissioning Indigenous Communications Supplementary Report (2023 January - 2026 February)	Canadian Nuclear Laboratories	April 23, 2026
Gentilly-1 Waste Facility Licence Amendment Application Environmental Protection Measures for Decommissioning and Demolition	Canadian Nuclear Laboratories	April 23, 2026
CNSC Staff's Review of Canadian Nuclear Laboratories Request for Confidentiality on CMD 26-H100 – Gentilly-1 Waste	Canadian Nuclear Safety Commission	May 5, 2026

Document	Author	Date Available to SCCF and TerraHumana Solutions
Facility		

Table 2. List of consulted legal and regulatory documents for the present intervention.

Document	Description	Date
Impact Assessment Act	An Act passed by the Parliament of Canada outlining the federal impact assessment process	In force August 28, 2019, and last amended June 2, 2025
Physical Activities Regulations	Regulations that identify the activities considered 'designated projects' under the *Impact Assessment Act*	Registered August 8, 2019, and last amended March 27, 2023
Nuclear Safety and Control Act	An Act passed by the Parliament of Canada to establish the Canadian Nuclear Safety Commission and its responsibilities	In force May 31, 2000, and last amended January 1, 2017
General Nuclear Safety and Control Regulations	Regulations that govern the use, transport, and disposal of radioactive materials and facilities	In force May 31, 2000, and last amended March 25, 2026
Canadian Nuclear Safety Commission Rules of Procedure	Rules of Procedure for the Canadian Nuclear Safety Commission, established pursuant to section 44 of the *Nuclear Safety and Control Act*	Created May 31, 2000, and last amended September 18, 2007

Table 3. Webinars attended by the SCCF and TerraHumana Solutions as research for the present intervention.

Webinar	Host	Date
Gentilly-1 Decommissioning Project: Decommissioning and Licencing	Canadian Nuclear Laboratories	February 10, 2026
CNL's Transportation of Dangerous Goods Program	Canadian Nuclear Laboratories	February 10, 2026
The Impacts of Radiation on Health	Transatlantic Nuclear Free Alliance	March 25, 2026

Consultation and Project Expertise. Primary data and regional context were gathered by consulting with stakeholders, rights-holders, and external experts (Table 4). Direct outreach included correspondence with nuclear expert Dr. Frank Greening on April 11, 2026. Engagement pathways were also initiated with the municipality of Bécancour and W8banaki—the tribal council representing the Abenaki communities of Odanak and Wôlinak—though formal consultation meetings could not be finalized prior to the submission of this intervention.

Finally, this assessment relied on the project team's internal subject-matter expertise. Internal oversight was provided by Dr. Ole Hendrickson (SCCF), an expert in nuclear safety and radioactive waste management. Technical expertise regarding species-at-risk threat assessments and Indigenous community engagement was provided by TerraHumana Solutions.

We had intended to include an analysis of the *Environmental Effects Review for the Gentilly-1 Waste Facility – Phase 3 Decommissioning* in our research. However, CNL did not provide this document to us. Instead, a related document, the *Gentilly-1 Waste Facility Licence Amendment Application Environmental Protection Measures for Decommissioning and Demolition*, was made publicly available on April 23, 2026, at a late stage in our research, limiting our ability to fully incorporate its contents into our review. The findings of our review can be grouped into five overarching themes: Procedural Issues, Contamination, Decommissioning Waste, Indigenous Peoples, and Impact Assessment.

Table 4. List of meetings with stakeholders, rights-holders, and experts attended by the SCCF and TerraHumana Solutions in preparation for the present intervention.

Meeting	Relevance to Project	Description	Date
Kebaowek First Nation (KFN) and Dr Gordon Edwards	G1WF decommissioning waste will likely be stored on KFN's traditional territory; Dr Gordon Edwards is president of the Canadian Coalition for Nuclear Responsibility	Discussion on the G1WF decommissioning waste and its management, storage, and transportation	January 26, 2026
Dr Geoff Garver	Expert on ecological law, policy, and governance	Discussion on the *Impact Assessment Act*	March 11, 2026
Kim Reeder	Responsible for the nuclear concerns of Passamaquoddy Recognition Group Inc.	Discussion on Peskotomuhkati Nation's experience with the CNSC and the G1WF Decommissioning	March 17, 2026
Nicholas Pope	Lawyer for the Concerned Citizens of Renfrew County and Area	Discussion on the Hearing in Writing for the G1WF Decommissioning	March 20, 2026

4 Findings

4.1 Procedural Issues and Access to Information

The present section outlines the procedural issues faced by members of the public and recipients of participant funding, such as the SCCF and TerraHumana Solutions, throughout the environmental effects determination process for the decommissioning of the G1WF.

4.1.1 *The Environmental Effects Review*

One issue concerns the *Environmental Effects Review for the Gentilly-1 Waste Facility – Phase 3 Decommissioning* (hereafter, *Environmental Effects Review*). This document was identified in CNL's original licence amendment application (CNL, 2024b) as part of the Licence

Amendment Application Package. Given our focus on the potential environmental effects of the G1WF decommissioning, we considered the document essential to preparing the comments for the July 2026 hearing.

The public comment period for the Project ended on February 5, 2026, and we had hoped to review the *Environmental Effects Review* before then. We requested this document from the CNSC and CNL on January 21 and January 27, 2026, respectively. In its response, CNL indicated that the document would be made publicly available closer to the hearing date but did not provide a timeline for its release.

The *Environmental Effects Review* has not yet been shared with the SCCF and TerraHumana Solutions. Other documents related to the G1WF have been made available (Table 5). Notably, in correspondence with the SCCF, CNL indicated that the *Gentilly-1 Waste Facility Licence Amendment Application Environmental Protection Measures for Decommissioning and Demolition* (hereafter, *Environmental Protection Measures*) was a revised title for the *Environmental Effects Review*. However, because the original *Environmental Effects Review* was not made available to us, we are unable to assess the nature and extent of the revisions between the two documents or fully understand the environmental basis supporting the original licence amendment application. Furthermore, had the *Environmental Effects Review* been provided in January 2026, we would have had additional time to review and analyze its contents and to use it as a foundation for our research. The delayed availability of this information limited our ability to incorporate it into our review process and increased the challenges associated with preparing a comprehensive intervention for the July 2026 hearings.

Table 5. Environmental reports and documents about the G1WF and our concerns.

Document	Source	Concerns
Environmental Effects Review for Gentilly-1 Waste Facility – Phase 3 Decommissioning	Produced by CNL but not publicly available	Not available to the public or to the SCCF and TerraHumana Solutions
Gentilly-1 Waste Facility Licence Amendment Application Environmental Protection Measures for Decommissioning and Demolition	(WSP, 2026)	Made available April 23, 2026; does not indicate differences between this document and the *Environmental Effects Review*
Environmental Risk Assessment for Gentilly-1 Waste Facility	(Arcadis Canada Inc., 2025)	Not specific to Decommissioning and Demolition

4.1.2 *Late Availability of Hearing Documents*

On April 23, 2026, seven documents were posted on the CNSC's hearing documents webpage, covering key project information, including the *Gentilly-1 Waste Facility Detailed Decommissioning Plan Volume 1 - Program Overview* (hereafter, G1WF DDP) and the *Environmental Protection Measures*. Given the July hearing and the June 17 deadline to request intervener status, the April 23 release left a limited window for members of the public to review and understand the information. This challenge is particularly significant for individuals and community groups that may lack the technical expertise or resources required to assess complex regulatory and environmental documentation. For participants who had already been conducting research and preparing interventions for several months, the late release of a substantial volume of new information necessitated additional review and analysis, leading to duplication of effort and delays in completing their work. In our view, once again, the timing of the document release did not provide sufficient time for a thorough analysis of the materials before the July 2026 hearings.

4.1.3 *Canadian Nuclear Laboratories' Confidentiality Request*

On April 21, 2026, CNL submitted a *Request for Confidentiality of Material Submitted in Relation to the Gentilly-1 Waste Facility Licence Amendment Application Hearing in Writing (CMD: 26-H100)*, asking the Commission to prohibit the publication and disclosure of the entire content of the following three documents:

- The *Preliminary Hazard Analysis for the Gentilly-1 Waste Facility;*

- The *Bounding Accident Analysis for the Phase 3 Decommissioning of the Gentilly-1 Waste Facility;* and
- The *Safety Analysis Report for the Gentilly-1 Waste Facility* (Thompson, 2026).

Under section 12(2(a)) of the *Canadian Nuclear Safety Commission Rules of Procedure* (2000), the Commission or a designated officer may restrict or prohibit the disclosure of information to intervenors only if the protection of the information outweighs the public interest in public hearings and the disclosure of evidence. We argue that, in this case, the protection of the information does not outweigh the public interest, and thus that the action of CNSC staff in prohibiting access to these documents is unreasonable.

The summaries of all three documents indicate that they address safety concerns for the public, workers, and/or the environment. For example, it is clearly in the public interest to have information about events "that could lead to release of nuclear substances and the potential for accidental exposure to high radiation fields impacting … the public, and the environment" (Thompson, 2026, p. 5).

For all three documents, the rationale for confidentiality is that the report contains technical information. However, intervenors who receive participant funding can hire experts fully capable of analyzing technical information to review CNL's assertion that "hazards associated with the G1WF do not pose any unacceptable risks" (Thompson, 2026, p. 5).

CNL's assertion that decommissioning the G1WF poses no unacceptable risk should be subject to independent scrutiny. We recommend that the Commission provide public access to the *Preliminary Hazard Analysis*, the *Bounding Accident Analysis*, and the *Safety Analysis Report* before making any decisions regarding the demolition of the Gentilly-1 reactor.

4.1.4 *No Opportunities for Independent Verification*

The confidentiality request described above fits into a broader pattern in which the CNSC and AECL make independent verification of their claims difficult. For example, in their February 10, 2026, webinar, CNL claimed that they would conduct a radiological characterization study of the G1WF but did not say they would share the results (CNL, 2026a). Moreover, CNL does not publicly share data on radionuclide releases from the G1WF, despite sharing such data for other facilities it operates (CNSC, 2025b). Without access to the radiological characterization study or radionuclide release data, the public is forced to trust that the CNSC and CNL are operating correctly, even though they cannot independently verify those claims.

4.1.5 *Public Availability of the Request for Ruling*

On April 13, 2026, the CNSC received and responded to a Request for Ruling from Concerned Citizens of Renfrew County and Area (CCRCA) regarding the decision to hold the Project's July 2026 hearing exclusively in writing and its potential implications. In its response, the CNSC stated that the Request for Ruling would be made publicly available as part of the hearing record; however, no timeline for its release was provided. As of the time

of writing, the document had not been posted and therefore remained inaccessible to members of the public seeking to review the hearing materials.

4.1.6 *Hearing in Writing*

As previously mentioned, the hearing for the Project is exclusively in writing. The Request for Ruling states that the *Nuclear Safety and Control Act*, the *Canadian Nuclear Safety Commission Rules of Procedure*, and various legal definitions require that a public hearing, as required for the environmental effects determination and licensing decision, be oral and in person. A hearing in writing prevents the public from meaningfully participating, as members of the public are denied the opportunity to express their concerns and receive answers to their questions orally.

4.1.7 *Public Availability of the Public Comments*

It was unclear whether the comments received during the Project's public comment period would be posted to the Impact Assessment Registry. Under federal impact assessments, public comments must be posted, but this requirement does not apply to a federal lands assessment like the Project. However, it should not be assumed that the public would be aware of this nuance, and many members of the public may have assumed that their comments would be posted. In an email to the SCCF dated May 7, 2026, the CNSC's Environmental Review Division indicated that the public comments submitted for the Project would not be posted to the Impact Assessment Registry because it had not been explicitly stated in advance that such comments would be made publicly available. As a result, comments submitted by interested parties, including our comments and those of KFN, which specifically requested public posting, will not be accessible through the registry.

In our view, the CNSC's approach to public disclosure of comments should have been clearly communicated when the public comment period was announced. Information on whether submitted comments would be posted to the Impact Assessment Registry should have been available on the Project's Impact Assessment Registry webpage from the outset of the consultation process.

4.1.8 *Confusion Surrounding the Designation Request for the Project*

The Canadian Coalition for Nuclear Responsibility (CCNR) submitted a request to the Minister of Environment and Climate Change to designate the decommissioning of the G1WF as a project and to conduct a full federal impact assessment. The Project information, the designation request, and the Agency's rejection of the designation are all available online (IAAC, 2026a; IAAC, 2026b; IAAC, 2026c), but they are posted in three separate locations, and the latter two seem impossible to access without a link (Table 6).

Table 6. The Project webpage, the designation request webpage, and the designation rejection webpage.

Item	Online Location
Decommissioning of the Gentilly-1 Waste Facility	https://iaac-aeic.gc.ca/050/evaluations/proj/90092?culture=en-CA
Request for Designation of Project	https://iaac-aeic.gc.ca/050/evaluations/document/165997
Vice President's Response - Decommissioning of the Gentilly-1 Waste Facility Project	https://iaac-aeic.gc.ca/050/evaluations/document/166096

Essentially, by keeping these items isolated, rather than adding the designation request and the designation rejection to the records section of the Decommissioning of the G1WF webpage, IAAC and the CNSC have made it difficult for the public to know that the designation request was made and the reasons given for rejecting it.

4.1.9 *Environmental Effects Determination Framework for AECL and the CNSC*

No information has been provided on how the CNSC and AECL will make the environmental effects determination. The Notice of Intent on the Impact Assessment Registry clearly states that both the CNSC and AECL must make an environmental effects determination, but it offers no indication of a procedure for this decision-making, other than that AECL will make its determination separately and prior to the CNSC (IAAC, 2025). In November 2025, Passamaquoddy Recognition Group Inc. (PRGI), representing the interests of Peskotomuhkati Nation, asked the CNSC and AECL to provide a clear, transparent, and coordinated framework for this process, but the CNSC and AECL never did. As a result, there is no way to know how the CNSC and AECL decision-making processes will be kept independent, how potentially divergent determinations might be reconciled, and how the public and Indigenous peoples can participate in each process.

Furthermore, the Impact Assessment Registry directed comments for the public comment period to an email address for CNL, even though the CNSC and AECL are the federal authorities for the Project. This reinforces the need for a clear framework for determining environmental effects, as it raises concerns that the CNSC is not properly overseeing the Project to ensure it is conducted appropriately and fairly.

4.1.10 *Summary of Procedural Issues*

In summary, access to information about the Project proved challenging. Several documents we consider essential to understanding the Project and its environmental impacts were

unavailable. These documents include the *Environmental Effects Review,* the *Preliminary Hazard Analysis*, the *Bounding Accident Analysis*, and the *Safety Analysis Report*. Other documents, such as the *Environmental Protection Measures*, were made available late in the Project process.

Moreover, relevant information, such as the Request for Ruling and the public comments, was not made available to the public. The designation request was posted online, but it is difficult to access.

As it stands, intervenors and members of the public cannot independently verify the safety of CNL's operations at the G1WF. Moreover, a written hearing is less effective than an oral one at eliciting meaningful answers to questions and concerns.

Taken together, these procedural shortcomings undermine the public's and participant funding recipients' ability to engage meaningfully in the Project and to contribute effectively to the decision-making process.

4.2 Contamination

4.2.1 Radionuclide Inventory

Canada has a history of contaminating public spaces and private property through the development, production, and use of nuclear energy. In the Port Hope, Ontario, area, uranium refining to extract radium in the 1930s, followed by uranium processing and conversion for nuclear weapons and reactors, created a legacy of mismanaged radioactive waste and resulting health impacts (PHCHCC, 2021). The federal government has accepted responsibility for the multi-billion-dollar clean-up there. In the Elliot Lake, Ontario, area, waste rock from uranium mining was used as infill under homes and driveways. Residents exposed to excessive levels of radon sought relief in federal court but lost when the CNSC argued that the contamination was "not associated with the development, production or use of nuclear energy" (Carolino, 2026). A complete and public radionuclide inventory for the G1WF is necessary to prevent the continuation of this harmful legacy.

Section 3(1)(c) of the *General Nuclear Safety and Control Regulations* (2000) requires that a licence application include "the name, maximum quantity and form of any nuclear substance to be encompassed by the licence." The information in Tables 7-10 of the G1WF DDP (CNL, 2024a) appears incomplete in this regard. For example, it is doubtful that cesium-137, a powerful gamma emitter found in the G1WF Turbine Systems (Table 7), the Heat Transport System (Table 9), and the Moderator System (Table 10), would be absent from the Reactor Core Components and Bioshield (Table 8).

Of particular concern is the omission of calcium-41 from Table 8. This very long-lived radioactive isotope, with a half-life of roughly 100,000 years, accumulates in concrete exposed to neutron irradiation. According to Evans et al. (1984):

> Calcium-41 is of particular interest due its long physical and biological half-life. Bioshield concrete contains extremely high levels of calcium. Calcium-41 is thus likely

> to dominate the long-term disposal considerations with respect to bioshield concretes, the most voluminous activated component of the reactor. Calcium-41 is produced entirely by thermal neutron capture on 96.9% abundant ^{40}Ca. Since the target nucleus is doubly magic in neutron and proton number (twenty each) its neutron capture cross-section is not very large (0.41 barns) and there are no important resonances. The production of ^{41}Ca in bioshield material is minimized by the relatively low neutron flux escaping from the vessel in a LWR. **Presumably, this situation would be somewhat worse for deuterium moderated or fast breeder designs** [emphasis added]. Calcium-41 decays purely to the ground state of ^{41}K with an approximate 103,000 year half-life. Its transition energy of 0.43 MeV is carried away by the neutrino with inner bremsstrahlung of minimal importance. Decay energy available in the form of ionizing radiation amounts to only 3.6 KeV mostly in the form of Auger electrons. According to the ICRP model, (ICRP 1959) however, calcium has a biological half-life of forty-four years and a fraction to the bone of greater than 50%. This results in a rather low calculated MPCw for this isotope (1.1×10^{-4}) mCi/cm^3). In spite of its low decay energy, the MPCw is considerably lower than that of ^{60}Co, for example. The problem is further complicated by the fact that this isotope has very unfavorable decay properties for routine detection at that level.

There is a significant error in the above paragraph. According to the Laboratoire National Henri Becquerel (2013), the total decay energy of calcium-41 is 421.6 keV. Calcium-41 decay results in the emission of multiple Auger electrons and X-ray photons. Auger electrons are highly damaging to cells. Calcium is retained in the body in bones. Reactor concrete must be kept isolated from the biosphere for long periods to avoid unacceptable risks to public health and the environment.

This raises an important question: is the total radioactivity of calcium-41 in concrete in the Gentilly-1 Reactor Building perhaps less than the exemption quantity in the *Nuclear Substances and Radiation Devices Regulations*, so it can be ignored? For a nuclear substance with an atomic number less than 81 that is not set out in column 1 of Schedule 1 of the *Regulations* (2000), the exemption quantity is 10,000 (10^4) becquerels (Bq). Dr. Frank Greening kindly illustrated how to estimate the inventory of calcium-41 in reactor concrete. He assumed that the Gentilly-1 reactor operated for a total of two years. Reducing this estimate by a factor of four to 1.46E+09 Bq, since the reactor operated for only 183 days, would still yield a calcium-41 value thousands of times its exemption quantity (Table7).

Table 7. Calculation to estimate the inventory of calcium-41 in the reactor concrete of the G1WF.

Isotopic abundance of calcium-40 (%)	96.94
Mass of calcium in g per gram of concrete	0.05
N_{target}	7.53E+20
sigma (barn)	4.1E-25
phi (n/cm^2/s)	4.00E+07
$t_{1/2}$ (years)	1.03E+05
t (irradiation period in sec)	6.312E+07
Lambda (s^{-1})	2.13E-13
Activity in Bq per gram of concrete	1.61E-01
Concrete in the Reactor Core Components and Bioshield (m^3)	1.5143E+04
Bulk density of standard concrete (kg/m^3)	2.4E+03
Concrete in the Reactor Core Components and Bioshield (g)	3.57E+10
Total calcium-41 activity (Bq)	5.85E+09

The total volume of concrete waste in the Gentilly-1 Reactor Building (including the Calandria, Bioshield, Dome, and Containment Structure) is 15,143 m^3 (CNL, 2024a, p. 119) (Table 7). CNL (2024) also indicates that 14,883 m^3 of this concrete waste is "potentially clearable." The remainder (260 m^3) is classified as Intermediate-Level Waste (ILW).

It is impossible for the Gentilly-1 Reactor Building concrete to contain ILW and clearable waste, but it contains no Low-Level Waste. Failure to fully analyze radioactive nuclear substances such as calcium-41 in the Gentilly-1 reactor concrete, and instead classifying the concrete waste as "clearable," could lead to its disposal in ordinary landfills or its incorporation into construction materials and roadways. This would be both irresponsible and illegal.

The challenge of managing neutron activation products during reactor decommissioning is described in detail in the publication *Long-lived activation products in reactor materials* (Evans et al., 1984) (Table 8).

Table 8. Long-lived activation products that are likely to occur in the G1WF (Evans et al., 1984).

Material(s)	Reactants	Product(s)	Half-life	Decay mode
Water, Concrete	Hydrogen-2, *n*	Hydrogen-3	12.3 years	Beta
Water, Concrete	Nitrogen-14, *n*	Carbon-14, *p*	5,730 years	Beta
Water, Concrete	Oxygen-17, *n*	Carbon-14, α	5,730 years	Beta
Concrete	Chlorine-35, *n*	Chlorine-36	301,000 years	Beta
Concrete	Calcium-40, *n*	Calcium-41	100,000 years	Electron capture
Metal, Concrete	Iron-54, *n*	Iron-55	2.8 years	Electron capture
Metal	Nickel-58, *n*	Nickel-59	76,000 years	Electron capture
Metal, Concrete	Nickel-62, *n*	Nickel-63	100 years	Beta
Metal, Concrete	Cobalt-59, *n*	Cobalt-60	5.3 years	Beta-Gamma
Metal	Niobium-93, *n*	Niobium-94	20,400 years	Beta-Gamma
Metal	Molybdenum-92, *n*	Molybdenum-93	4,800 years	Electron capture
Concrete	Barium-132, *n*	Barium-133	10.6 years	Electron capture-Gamma
Concrete	Europium-151, *n*	Europium-152	13.5 years	Positron or Beta

Long-lived activation products such as chlorine-36, calcium-41, and molybdenum-93 (Table 8) are very likely to be present in the G1WF but have been omitted from the G1WF DDP. It is unclear whether this omission was deliberate or an oversight. In either case, it calls into question the licence applicant's compliance with the *General Nuclear Safety and Control Regulations.*

Furthermore, most radioactive nuclear substances in this table are difficult to measure. A lack of credible estimates of their activity in the G1WF, combined with an absence of details on how those estimates were made, makes it highly likely that the Project will cause significant adverse environmental effects. Publicly available documents for the hearing provide no indication of whether or how deficiencies in the current estimates of radioactive nuclear substances in the G1WF would be corrected. Withholding the G1WF *Safety Analysis Report* from public scrutiny increases the likelihood of significant adverse environmental effects from the Project.

Therefore, a radionuclide inventory that includes the radionuclides omitted thus far and credible estimates of activity must be made publicly available.

4.2.2 Soil Contamination

The numerous past accidents described in section 4.1 of the G1WF DDP (CNL, 2024a, pp. 26-51) strongly suggest that the G1WF has already released significant quantities of tritium and carbon-14 into the environment. Decommissioning activities could further contaminate the soil with these radionuclides. This is cause for concern, as both are highly mobile in the environment, can become organically bound, and are harmful to the human body (Edwards, 2022).

4.2.3 Contamination of the St. Lawrence River

Radionuclide releases pose a risk of contaminating the nearby St. Lawrence River. Decommissioning of a nuclear facility near a river is cause for special concern, as rivers are considered rapid exposure pathways (Burger et al., 2011). Radionuclides released during G1WF decommissioning could be carried downstream and contaminate other areas.

4.2.4 The ALARA Principle

The regulatory document *Keeping Radiation Exposures and Doses "As Low as Reasonably Achievable (ALARA)"* includes a provision to "keep the amount of exposure to radon progeny and the effective dose and equivalent dose received by and committed to persons as low as is reasonably achievable, social and economic factors being taken into account" (CNSC, 2004, p. 1). This is known as the ALARA (As Low As Reasonably Achievable) Principle, and one way it is implemented is through the "control of occupational and public exposure" (CNSC, 2004, p. 1). The regulatory guide on the ALARA Principle is clear that available resources and techniques should be taken into consideration when managing radiation exposure, but also that "efforts must be made to further reduce doses" (p. 2) beyond the relevant dose limits, and that decision-making should consider the views of the public (CNSC, 2004).

The application of the ALARA Principle is crucial to the appropriate management of contamination risks associated with the Project. We argue that the correct application of the ALARA Principle would require its use across all aspects of the Project. See sections 4.3.1 and 4.4.3 for more details.

4.3 Impacts of Contamination

4.3.1 The Public

Vital to the decommissioning of the G1WF is minimizing radiation exposure to the public. Radionuclide releases from decommissioning would have an additive effect on the radiation to which the public has already been exposed (Ian Fairlie, pers. comm.).

The impact of chronic low-dose radiation on the general population remains a complex and debated area of research. Numerous studies indicate a positive correlation between cancer rates and proximity to nuclear power plants (NPPs), though identifying specific causal mechanisms remains difficult (Alwadi et al., 2026; Russo et al., 2023). For instance, the German KiKK study found a higher cancer risk among children under age five living near NPPs, yet these findings could not be reconciled with standard dose-rate projections

(Kaatsch et al., 2008; Spix et al., 2008). It has been suggested that periodic spikes in reactor emissions might result in radionuclide uptake by pregnant women, and that current models may underestimate the radiosensitivity of fetuses and infants (Fairlie, 2014). Conversely, some researchers argue that routine reactor emissions do not pose a significant health threat, asserting that many studies fail to show a clear link and that any potential causal association would be indistinguishable from baseline cancer rates (Stein & Seel, 2026).

Ultimately, the debate over the effects of chronic low-dose radiation on humans is ongoing. This should not be taken to mean that the health risks of proximity to a nuclear facility are nonexistent or negligible, because nuclear facilities generate large volumes of radioactive waste that did not previously exist, and this waste should always be treated with the utmost seriousness (Gordon Edwards, pers. comm.). Moreover, Fairlie (2014) suggests that dose-rate estimates could be inaccurate for a variety of reasons, including underestimates of fetal and infant radiosensitivity, which may help explain why explanatory mechanisms are difficult to identify.

Given the uncertainty surrounding this issue, we must consider the precautionary principle, an anticipatory strategy for addressing scientific uncertainties in risk assessment. Although many definitions of the precautionary principle have been proposed, one conceptualization holds that "when human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm" (World Commission on the Ethics of Scientific Knowledge and Technology, 2005).

We note that the "Application of ALARA" section of the *CMD 26-H100 - Submission from CNSC Staff - Canadian Nuclear Laboratories Ltd. Request to Amend the Licence and the Licensing Basis for Gentilly-1 Waste Facility* document (hereafter, CMD 26-H100) addresses only worker protection (CNSC, 2026a, p. 20). The ALARA Principle explicitly applies to public exposures to ionizing radiation, as explained in section 4.2.3 above. It is a foundational pillar of international radiation safety regulation and applies to both occupational workers and members of the public.

Given the high level of uncertainty regarding the health effects of low-dose ionizing radiation and the paramount importance of public health and safety, we argue that both the ALARA Principle and the precautionary principle must be prioritized when considering public exposure to ionizing radiation resulting from the Project.

4.3.2 Workers

Alpha and beta radiation can be difficult to measure and identify, so workers may be exposed to these forms of radiation for extended periods before contamination is detected. For example, during a retubing operation at Pickering Nuclear Generating Station in 1985, workers tracked carbon-14 particulate dust into their homes for weeks before the error was found and addressed (Canada Commons, 1985; CCNR, 2026). Similarly, during a refurbishment of Bruce Nuclear Generating Station, workers inhaled alpha-emitting dust for 2.5 weeks before the problem was noticed (CCNR, 2026).

In addition, deferred decommissioning can lead to carelessness with worker protections, as it is assumed that harmful radiation has had time to decay (Gordon Edwards, pers. comm.). Therefore, poor worker protections are not unprecedented in Canada, and the fact that the G1WF has been shut down for 43 years may lead to the repetition of past mistakes.

As with the public, the impact of long-term low-dose radiation on nuclear workers is debated. Richardson et al. (2023) found evidence supporting a linear association between protracted low-dose external exposure of nuclear workers to ionizing radiation and solid cancer mortality, while Stein and Seel (2026) argue that studies of nuclear workers found no definite link between routine exposure to ionizing radiation and cancer risk. Again, this uncertainty encourages adherence to the precautionary and ALARA principles; the utmost care must be taken to avoid exposing workers to radiation during decommissioning, including difficult-to-identify alpha and beta radiation.

4.3.3 Species at risk

According to the *Environmental Protection Measures*, 57 at-risk species are potentially present in the vicinity of the G1WF (WSP, 2026, pp. 67-68).

Data from the *Centre des données sur le patrimoine naturel du Québec* indicate that 13 at-risk species may be present within 5 km of the G1WF (Table 9). Two of these species, long sedge and black tern, are not included in the list of at-risk species in the *Environmental Protection Measures*. Therefore, a total of 59 at-risk species may be present in the vicinity of the G1WF.

There is considerable evidence that radiation harms ecosystems and wildlife (Ajanaku et al., 2025; Mousseau & Møller, 2011; von Werhden et al., 2012). For example, studies of the Fukushima Daiichi nuclear accident found increased mortality and abnormalities in aphids, declines in barn swallow abundance, delayed fetal growth in Japanese monkeys, and reduced nest success in goshawks (Akimoto, 2014; Bonisoli-Alquati et al., 2015; Hayama et al., 2023; Murase et al., 2015). The impacts of radiation on wildlife vary by species and age class (Einor et al., 2016; von Werhden et al., 2012), and researchers found no adverse effects in studies of wild Japanese tree frogs and wild Japanese field mice (Giraudeau et al., 2018; Okano et al., 2016).

For plants, some studies show impacts on certain species. For example, in their review of the effects of chronic low-dose irradiation on plant species, Mousseau and Møller (2020) explain that ionizing radiation is associated with increased mutation rates in some plant species but not in others. There is evidence that many plant species are vulnerable to low-dose radiation exposure, with potential impacts including genetic damage, morphological abnormalities, and reduced reproduction (Mousseau and Møller, 2020). For example, a review by Ludovici et al. (2022) found that the rate of morphological changes in conifers exposed to chronic low-dose radiation following the Fukushima disaster was directly proportional to the dose of ionizing radiation received.

Table 9. At-risk species potentially present within 5 km of the G1WF according to the *Centre des données sur le patrimoine naturel du Québec:* https://services-mddelcc.maps.arcgis.com/apps/webappviewer/index.html?id=2d32025cac174712a8261b7d94a45ac2

Common Name	Scientific Name	Provincial Status	SARA Status
Flora			
Green Dragon	*Arisaema dracontium*	Menacée	Special Concern
Long Sedge	*Carex folliculata*	Susceptible	None
Parker's Pipewort	*Eriocaulon parkeri*	Menacée	None
Butternut	*Juglans Cinerea*	Susceptible	Endangered
Fish			
Stonecat	*Notorus flavus*	Vulnérable	None
Eastern Sand Darter	*Ammocrypta pellucida*	Menacée	Special Concern
Channel Darter	*Percina copelandi*	Vulnérable	Special Concern
Rosyface Shiner	*Notropis rubellus*	Susceptible	Not at risk
Bridle Shiner	*Notropis bifrenatus*	Vulnérable	Special Concern
Avifauna			
Peregrine Falcon	*Falco peregrinus*	Vulnérable	None
Black Tern	*Chlidonias niger*	Candidate	None

Common Name	Scientific Name	Provincial Status	SARA Status
Short-eared Owl	*Asio flammeus*	Susceptible	Special Concern
Least Bittern	*Ixobrychus exilis*	Vulnérable	Threatened

Once released into the environment, radionuclides can move through ecosystems and affect wildlife through trophic transfer. In terrestrial ecosystems, Ajanaku et al. (2025) found that plants and mushrooms serve as vectors for cesium transfer to animals. Trophic transfer is also a concern in aquatic ecosystems, as Dong et al. (2024) found that carbon-14 transferred from algae to daphnia to zebrafish was retained in zebrafish brains, causing neurotoxic effects. Furthermore, radionuclides can move from terrestrial to aquatic environments through erosion and surface runoff (Ajanaku et al., 2025). Therefore, given that the Project risks contaminating the environment surrounding the G1WF, including the soil and the St. Lawrence River, decommissioning the G1WF risks harming endangered species by exposing them to radionuclides.

Taken together, the evidence that radionuclides can harm certain wildlife species and the presence of at-risk species near the G1WF support the application of the precautionary principle. Radiation exposure is an additional stressor for nearby at-risk species, which are already vulnerable to existing environmental pressures. Accordingly, the Project should proceed with stringent measures to prevent the release of radionuclides and the contamination of the surrounding environment.

4.4 Waste Transportation, Storage, and Disposal

4.4.1 Nuclear Waste Management in Canada

Historically, Canada's legal framework for nuclear development did not adopt a life-cycle approach to planning nuclear power plants, overlooking decommissioning and waste management in favour of promoting and developing nuclear energy. This framework remains far from perfect, though improvements have been made since the Atomic Energy and Control Act of 1946, including the implementation of the Nuclear Safety and Control Act in 2000 (Blaise & Stensil, 2021). One flaw concerns the management of nuclear waste after a reactor's closure. It appears the G1WF will follow the example of other Canadian reactors, such as Pickering and Point Lepreau, relying on radioactive waste disposal solutions that do not yet exist (Blaise & Stensil, 2021; Kim Reeder, pers. comm.).

The Deep Geological Repository (DGR) is Canada's solution for its high-level waste, including spent nuclear fuel. The Nuclear Waste Management Organization (NWMO) has identified a location for the DGR after a 14-year siting process, and the project is currently in the early stages of a federal impact assessment. The DGR is expected to become operational in 2043

(NWMO, 2025), but, given that all of Canada's nuclear waste projects have encountered delays (Blaise & Stensil, 2021), this date could be pushed back.

The Near Surface Disposal Facility (NSDF) is a planned facility for low-level radioactive waste at Chalk River Laboratories (CRL) (CNSC, 2025b, p. 84), but it is currently facing delays. In February 2025, a Federal Court judge ruled that Indigenous consultation had been inadequate. CNL had to resume its consultation process with Kebaowek First Nation, this time considering the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and its standard of free, prior, and informed consent (FPIC) (Forester, 2025). In May 2026, the Federal Court of Appeal upheld a March 2025 Federal Court decision that successfully challenged the approval of the NSDF at CRL because of the presence of at-risk species, including Blanding's turtle and the little brown bat (Woolf, 2026).

In 2023, NWMO assumed responsibility for finding a management solution for intermediate- and non-fuel high-level waste. Site selection for a second DGR intended to meet this need is expected to begin around 2028 (NWMO, 2025).

4.4.2 Nuclear Waste and the G1WF Decommissioning

The decommissioning of the G1WF must proceed with the recognition that the waste it will generate currently lacks a permanent storage solution. This reality should be a central consideration in the planning and implementation of the Project. The G1WF decommissioning must account for the risks of moving these wastes twice. The *Environmental Protection Measures* acknowledge that avoiding double handling of waste is an accepted industry practice, yet it is unclear why this practice is not being implemented for the Project (WSP, 2026, p. 43). In addition, given the possibility of delays in establishing permanent waste storage facilities, G1WF decommissioning must consider the uncertainty about how long these wastes will remain at Chalk River Laboratories while awaiting permanent storage, including the implications for Indigenous consent. Furthermore, it is important to consider the risk that CNL will not properly label or categorize G1WF decommissioning waste (see section 4.2.1 for more details). This would risk improper disposal of the waste at some point in the future.

Regarding the transportation of radioactive waste, the Project should not proceed without the consent of First Nations and communities at the storage location and along the entire transportation route. The importance of consulting communities at storage locations and along transportation routes, and of incorporating UNDRIP and FPIC when consulting Indigenous peoples, has been emphasized by various First Nations, including Kebaowek First Nation and Eagle Lake First Nation (Anishinabek News, 2017; Speak et al., 2026).

4.4.3 Waste and the ALARA Principle

We argue that the correct application of the ALARA Principle to the Project would require its application to the entire Project, including the creation and management of decommissioning waste. Poor handling of waste risks increasing worker and public exposure to radiation, and the public interest in the G1WF decommissioning waste was made clear during the public comment period (WSP, 2026, p. 43). According to the *Keeping Radiation*

Exposures and Doses "As Low as Reasonably Achievable (ALARA)" document mentioned in section 4.2.4 above, decommissioning waste should be considered part of the Project hearing and be subject to the ALARA Principle. Of relevance to the ALARA Principle is the double handling of the G1WF decommissioning waste, resulting from its transport to Chalk River Laboratories and subsequent transfer to a permanent facility. Avoiding this double handling must be seriously considered, as it is well within what is reasonably achievable for CNL, could lessen public and worker radiation exposure, and would respond to public concern.

4.4.3 Scoping out Waste from the Project

Regarding the determination of the Project's environmental effects, the CNSC (2026a, p. 60) states that "transport of nuclear waste" and "management of G1WF waste at the Chalk River Laboratories site" are "not directly within the scope of this proposed project." As a result, the environmental effects assessment does not fully consider the potential impacts associated with the transportation, storage, and long-term management of the radioactive waste generated by the Project.

When making a determination under section 82 of the IAA, an authority must consider the five factors set out in subsection 84(1). One of these factors is "Comments received from the public under subsection 86(1)." The CNSC (2026a, p. 60) is clear that G1WF waste was a common theme in the public comments, and we are aware of many comments expressing concerns about safe waste management, including our own and those of KFN, CCRCA, CCNR, and PRGI.

Furthermore, both domestic and international obligations require that detailed decommissioning plans cover the full life cycle of activities, including waste transport, interim waste storage, waste disposal, and the restoration of the licensed facility site to an end state in which regulatory controls can be removed (CNSC, 2021; International Atomic Energy Agency, 2014). Neither the G1WF DDP (CNL, 2024a) nor the CMD 26-H100 (CNSC, 2026a) adequately addresses these matters.

Safety and Control Areas (SCAs) are evaluated by the CNSC to determine whether licensees meet regulatory requirements and performance expectations (CNSC, 2023). The CNSC has assessed how the "Transport and Packaging" and "Waste Management" SCAs will be affected by CNL's licence amendment application for the G1WF (Table 10).

Table 10. CNSC Staff's evaluation of how the proposed licence amendment for the G1WF impacts the "Packaging and Transport" and the "Waste Management" SCAs (CNSC, 2026a).

SCA	Does the Scope of CNL's Application Impact this SCA?	Explanation
Packaging and Transport	No	CNSC staff state that the transfer of nuclear substances is within the current licensing basis of the G1WF.
Waste Management	Yes	CNSC staff verified that the plans for Phase 3 activities are appropriately detailed in accordance with the CSA N292 series standards and applicable regulatory requirements.

We argue that the CNSC evaluations (Table 10) are inaccurate. The exclusion of safety concerns associated with "Packaging and Transport" is unreasonable from a public-interest perspective and does not meet applicable safety standards.

In addition, the CNSC's decommissioning regulatory document states that "The DDP shall document the decommissioning strategy; decontamination, dismantling and/or clean-up activities; final end-state objectives; the principle [sic] hazards and protection plans; a waste management plan; a cost estimate; and financial guarantee arrangements" (CNSC, 2021, p. 10).

The G1WF DDP does not include a waste management plan that specifically addresses the packaging and transport of G1WF decommissioning waste to CRL, the interim storage of G1WF waste at CRL, and the eventual disposal of that waste.

This lack of information is evident in the G1WF Decommissioning Cost Breakdown Estimate in the G1WF DDP (CNL, 2024a, p. 129). This cost breakdown is wholly inadequate and non-transparent. It uses headings that do not conform to the *Financial Guarantees for Decommissioning of Nuclear Facilities and Termination of Licensed Activities* regulatory document (REGDOC-3.3.1, CNSC, 2022). Although a separate "Decommissioning Cost Estimate" document is referenced, insufficient information from that document is included in the G1WF DDP to assess the adequacy of the cost estimate.

Financial guarantees must be updated every five years. More than ten years have passed since a financial guarantee was recognized for decommissioning the G1WF (Rickford, 2015).

The Commission should ask the Government of Canada to issue a new financial guarantee for the G1WF before making any licensing or environmental impact decisions.

Table 11 below provides examples of decommissioning cost items and their sub-activities from the International Structure for Decommissioning Costing, as presented in Appendix D of REGDOC-3.3.1 (CNSC, 2022).

The decommissioning of a nuclear power reactor involves several activities beyond demolition (**Table 11**). These activities, and their implications for the protection of the environment and the health and safety of persons, have received inadequate consideration in CMD 26-H100 and the G1WF DDP. Management of G1WF decommissioning waste will affect countless future generations. The public must have assurances that an acceptable plan is in place to manage this waste. As this would be the first project involving the full demolition of a power reactor in Canada, it will generate novel nuclear substances and radioactive waste forms. A management plan for G1WF decommissioning waste must be included in the G1WF DDP.

Table 11. Examples of decommissioning cost items and their sub-activities (CNSC, 2022).

Decommissioning Cost Item	**Sub-activities of Decommissioning Cost Item**
Management of decommissioning low-level waste	• Characterization • Processing • Final conditioning • Storage • Transport • Disposal • Containers
Management of decommissioning intermediate-level waste	
Management of decommissioning waste and materials generated outside controlled areas	• Recycling of concrete • Treatment and packaging of hazardous waste • Treatment and recycling of other materials • Transport of hazardous waste • Disposal of hazardous waste at dedicated waste dumps • Transport of conventional waste and materials • Disposal of conventional waste at conventional waste dumps

4.4.4 Summary of Waste Concerns

Canada has a history of poor foresight in nuclear waste planning, with ongoing, long-term consequences. Permanent facilities for the storage of low-, intermediate-, and high-level radioactive waste are either decades away, delayed, or not yet planned. As a result, the imminent demolition of the G1WF forces the double handling of its decommissioning waste, with serious implications for the environment, public and worker exposure, and Indigenous rights. Correct application of the ALARA Principle requires considering alternatives to this strategy and minimizing the risk of double-handling. Respecting Indigenous rights requires meaningful engagement, including seeking FPIC, from all Indigenous communities near the G1WF, near CRL, and along the waste transportation route.

Despite this, the CNSC and CNL consider decommissioning waste outside the scope of the Project. This is inappropriate given public concerns about safe waste management, national regulatory requirements that DDPs include waste management, and international recommendations.

Given the lack of consideration of the matters discussed in this section, the Commission for the Project hearing cannot accept either the CNSC staff recommendation regarding the environmental effects determination or the recommendation regarding the licensing of the G1WF decommissioning project (CNSC, 2026a, pp. i-ii).

4.5 Impacts of the Project on Indigenous Peoples

It is essential that the decommissioning of the G1WF be carried out in a manner consistent with *Canada's Policy for Radioactive Waste Management and Decommissioning* (hereafter, the Policy), and that the CNSC ensure compliance with the principles and requirements set out therein. This includes Indigenous rights to consultation, as stated in the *Constitution Act, 1982* and elaborated through case law, as well as Indigenous rights outlined in the UNDRIP, which became law in Canada in 2021 through the *United Nations Declaration on the Rights of Indigenous Peoples Act* (Natural Resources Canada, 2023).

One of the Policy's priorities is a "commitment towards building partnerships and advancing reconciliation with Indigenous peoples" (p. 11), and the Policy is clear that meaningful engagement of Indigenous peoples regarding radioactive waste management and decommissioning projects includes FPIC (p. 12). Furthermore, Article 29(2) of UNDRIP provides that "States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of indigenous peoples without their free, prior and informed consent" (UNDRIP, 2007).

4.5.1 Gentilly-1 Fuel Transfer and Indigenous Rights

The Gentilly-1 fuel transfer involves transporting spent fuel rods from the G1WF to CRL. The *Regulatory Oversight Report for Canadian Nuclear Laboratories Sites: 2024* notes that "The first shipments departed the G1WF in December 2024" (CNSC, 2025d, p. 84). In response to a question about the Gentilly-1 reactor fuel shipments tabled in the House of Commons, Minister Tim Hodgson stated that there was "Extensive engagement with Indigenous Nations and the public around the Chalk River Laboratories before, during and after the used fuel

shipments," and that "Canadian Nuclear Laboratories also engaged directly with the Algonquins of Pikwakanagan First Nation (AOPFN) and Kebaowek First Nation through meetings, regular information sharing, and site visits in 2025, during which this topic was discussed" (House of Commons, 2025).

Despite CNL's longstanding engagement with the AOPFN and KFN on issues related to the Chalk River Laboratories, there was no engagement specific to the Gentilly-1 fuel transfer project before the high-level fuel waste shipments commenced in December 2024 (CNL, 2026b). This is contrary to the commitment to uphold Indigenous rights as outlined in the Policy and has eroded trust in the CNSC and CNL. The CNSC and CNL must therefore ensure that Indigenous engagement for the Project is meaningful and aligned with the Policy's requirements to avoid further harm to reconciliation efforts.

4.5.2 W8banaki Nation

The consent and engagement of the W8banaki Nation are crucial to the decommissioning of the G1WF. The Abenaki communities of Odanak and Wôlinak, which together form the W8banaki Tribal Council, are the Indigenous communities closest to the G1WF, located approximately 60 and 15 kilometers away, respectively.

We spoke with a W8banaki representative, who noted that W8banaki has not been heavily involved in the Project to date but is considering opportunities to increase its engagement. The *Gentilly-1 Waste Facility Decommissioning Indigenous Communications Supplementary Report (2023 January-2026 February)* states that W8banaki and CNL have communicated in the past and that routine engagement checkpoints are maintained as engagement opportunities (CNL, 2026b).

We are aware that W8banaki have submitted a letter to CNL and the CNSC requesting (1) clarification of the Indigenous consultation process for the decision to decommission the G1WF and return the site to Hydro Quebec, (2) the establishment of an ongoing dialogue between W8banaki and Crown representatives, including CNL and Hydro Quebec, regarding the Project, and (3) that the CNSC address all concerns raised by W8banaki in their letter before making the licensing decision. We expected CNL and the CNSC to meet these requests and engage meaningfully with W8banaki.

4.5.3 Kebaowek First Nation

Kebaowek First Nation (KFN) is part of the broader Algonquin Nation. The community is in Quebec, near Temiscaming and the Quebec-Ontario border. KFN members can exercise their rights across the Algonquin traditional territory, including the Chalk River Laboratories site (KFN & Kitigan Zibi Anishinabeg First Nation, 2023).

KFN has already seen its rights violated regarding the storage of radioactive waste on its territory. As noted earlier in this document, KFN was inadequately consulted about the NSDF project (Forester, 2025). In addition, KFN was not consulted at all when the spent fuel from the G1WF was transported to Chalk River Laboratories (KFN, pers. comm.).

A letter from KFN to CNL and the CNSC, dated February 2026, included in the *Gentilly-1 Waste Facility Decommissioning Indigenous Communications Supplementary Report*, published on the CNSC's G1WF on April 23, 2026, emphasizes that KFN must provide FPIC before G1WF decommissioning waste is transported to Chalk River Laboratories (CNL, 2026b). However, given that hearings for this project are exclusively in writing and that there is no impact assessment, it seems likely that, once again, KFN's rights to consultation and FPIC for the storage of radioactive waste on their lands will be violated.

4.5.4 Algonquins of Pikwakanagan First Nation

The *Gentilly-1 Waste Facility Decommissioning Indigenous Communications Supplementary Report* includes a February 5, 2026, letter from AOPFN to the CNL and the CNSC (CNL, 2026b). AOPFN opposes the importation of any radioactive waste from other Canadian and/or other jurisdictions into AOPFN territory. In January 2025, CNL officially advised AOPFN that high-level fuel waste shipments from G1WF to CRL were planned for 2025, but AOPFN was not given an opportunity to provide input on the finalization of the plans.

4.5.5 Peskotomuhkati Nation

The information in this section on Peskotomuhkati Nation's experience with the Project was obtained through personal communication with Kim Reeder of PRGI.

Passamaquoddy Recognition Group Inc. (PRGI), which represents the interests of the Peskotomuhkati Nation, applied for participant funding offered by the CNSC for the decommissioning of the G1WF but was rejected. PRGI was told that, because it is in New Brunswick, it was geographically too far from the project to be considered eligible for funding.

However, in the initial call for participant funding applications, it was writstatede G1WF is on the territory of the Wabanaki Confederacy, of which Peskotomuhkati Nation is a part. This language was removed after PRGI pointed it out. No Indigenous groups received participant funding, despite the available $75,000 being allocated (CNSC, 2025a).

PRGI has no intention of speaking over the Indigenous communities closer to the G1WF, but they have many concerns and suggestions regarding the G1WF decommissioning that they could have developed had they received participant funding. For example, they point out that it is problematic that decommissioning plans rely on the DGR and other hypothetical waste storage solutions, even though these do not exist and will not exist for years to come.

They also critique the fairness of CNSC processes, arguing that if the CNSC cannot demonstrate that the appropriate processes were followed, those processes effectively did not occur. This is related to the *Environmental Effects Review* for the G1WF decommissioning not being made available to the public and to a lack of public information about the CNSC and AECL's decision-making framework for determining the Project's environmental effects. PRGI also argues that, to consider Indigenous peoples as required in a section 82 federal lands assessment under the IAA, the CNSC must include them in the process. This is called

into question by the absence of Indigenous peoples among the recipients of participant funding.

4.5.6 Joint Declaration of the Iroquois Caucus and Anishinabek Nation

In 2017, the Iroquois Caucus and the Anishinabek Nation released the *Joint Declaration between the Anishinabek Nation and the Iroquois Caucus on the Transport and Abandonment of Radioactive Waste*. The Anishinabek Nation represents the political interests of 39 First Nations across Ontario, while the Iroquois Caucus represents the Haudenosaunee communities of Kahnawa:ke, Kanehsata:ke, Akwesasne, Tyendinaga, Six Nations of the Grand River, and Oneida Nation of the Thames (Mohawk Council of Akwesasne, 2025; Union of Ontario Indians, n.d.).

The declaration includes assertions that "[transport] of nuclear waste should be strictly limited and decided on a case-by-case basis with full consultation with all those affected" and that "radioactive waste must not be stored beside major water bodies for the long-term" (Anishinabek News, 2017). Transporting G1WF decommissioning waste through Quebec and storing it at Chalk River Laboratories in Ontario, along the Ottawa River, would violate the above provisions of the *Joint Declaration* and, consequently, the rights of the signatories. Therefore, before the G1WF decommissioning waste is moved to CRL, meaningful engagement with the Anishinabek Nation and the Iroquois Caucus is required.

4.6 Impact Assessment and the Project

4.6.1 The St. Lawrence Regional Assessment

The decommissioning of the G1WF has been added to the list of activities relevant to the ongoing St. Lawrence Regional Assessment (SLRA). This provides an opportunity for the project to be considered in the context of the cumulative impacts of industrial development along the St. Lawrence River. If the decommissioning of the G1WF were delayed until the SLRA was completed, the facility could be decommissioned with greater knowledge of its contribution to the risks to the health and well-being of people and the environments along the St. Lawrence River. As a result, decisions regarding the decommissioning would be better informed.

4.6.2 Summary of Requests for an Impact Assessment

Groups that requested that the G1WF project be designated, and thus subject to impact assessment, include KFN, PRGI, CCRCA, CCNR, and the SCCF. We received public comments from these groups via personal communication. Most of these requests were included in comments on the section 82(a) IAA determinations by the two federal authorities (AECL and CNSC) for the G1WF decommissioning project. The SCCF and others requested that these federal authorities publish their comments on the Impact Assessment Registry project webpage (Reference # 90092). However, the CNSC refused our request. The SCCF comments are included in Appendix 1 to this intervention, making them publicly available.

Both KFN and PRGI argued that all nuclear decommissioning projects should be subject to federal impact assessment. Their argument rests primarily on the complexity and hazards of decommissioning, which warrant rigorous assessment of environmental, health, economic, and social impacts. As PRGI explains, the fact that nuclear decommissioning does not automatically trigger a federal impact assessment allows the continuation of poor practices seen in the Canadian nuclear industry over the last 75 years, where nuclear projects are undertaken without end-of-life planning. KFN further criticizes these practices, arguing that decommissioning the G1WF without a federal impact assessment exemplifies the inadequacies of the IAA, which allows the nuclear industry to operate without "sound and precautionary planning."

Furthermore, CCRCA, CCNR, and SCCF argue that decommissioning the G1WF poses significant environmental effects that justify designating the Project. For example, CCNR explains that dismantling the G1WF structures will produce large volumes of intermediate-level radioactive waste, with a significant risk of contamination arising from cutting, grinding, and blasting. The SCCF also raises concerns about inadequate public engagement, including a written rather than oral hearing and a lack of transparency surrounding the project. Taken together, these considerations make it clear that the public interest is best served by a federal impact assessment that transparently considers the environmental, health, economic, and social impacts of dismantling the G1WF and handling the resulting waste, and that facilitates meaningful public and Indigenous engagement, with oversight from accountable public agencies.

4.6.3 Response to the Requests for an Impact Assessment

The office of the Minister of Environment, Climate Change, and Nature rejected the requests for an impact assessment, arguing that the G1WF decommissioning falls under both provisions in section 9(7) of the IAA that prevent the Minister from designating a project. This means the Minister considers the project to have substantially begun and that the existing waste facility decommissioning licence allows the project to be carried out in whole or in part under the *Nuclear Safety and Control Act*.

Decommissioning activities have been ongoing at the G1WF since 1984, but the licence amendment that is the subject of this environmental effects determination specifically concerns Phase 3 Decommissioning, the Decommissioning and Demolition Phase (D&D) (CNL, 2024a). Importantly, this phase of decommissioning was the subject of the designation requests. It is impossible for this phase to have substantially begun, or for the existing licence to permit the phase to be carried out in whole or in part, since CNL cannot proceed with D&D activities until the licence amendment, together with the detailed decommissioning plan, is approved.

The Minister of Environment, Climate Change, and Nature is relying on the ambiguity of language surrounding decommissioning to reject requests for designation. We do not speak on behalf of KFN, PRGI, CCRCA, or CCNR, but we believe that no one who requested the designation of this Project thought that a federal impact assessment could be conducted for all phases of G1WF decommissioning, as we are all aware that decommissioning began

decades ago. Rather, the designation requests concern the *dismantling* of the G1WF and subsequent activities. The Storage With Surveillance (SWS) phase of decommissioning is substantially different from the D&D phase. Given that the G1WF is entering a phase of decommissioning that involves complex dismantling and the creation of large volumes of radioactive waste (CNL, 2024a), the SWS and D&D phases of decommissioning should be treated as separate projects under the IAA. Therefore, the reasons provided for rejecting the designation requests do not justify the decision to reject.

In addition, the reasons for the rejection of the designation establish a disturbing precedent. They indicate that a nuclear reactor built without an impact assessment can avoid current environmental laws because decommissioning began decades before those laws existed. By applying section 9(7) of the IAA to decommissioning as a whole rather than to the D&D phase, the Minister creates a loophole under which current decommissioning activities need not be subject to current environmental laws. The G1WF, being a decades-old facility, does not preclude it from causing environmental harm, and thus it should be subject to current environmental laws.

4.6.4 The Inadequacy of Current Impact Assessment Law

Given that the final stage of nuclear decommissioning, including dismantlement, decontamination, and site restoration, has been historically ignored, resulting in a lack of experience and research on the topic (Blaise & Stensil, 2021), it is a flaw in the IAA that decommissioning does not require an impact assessment.

In fact, the current provisions for this Project in the IAA undermine the IAA's own mandate. The mandate states that the IAA should be carried out in a way that fosters sustainability, respects the rights of Indigenous peoples, considers the cumulative effects of physical activities, applies the precautionary principle, and promotes cooperation among jurisdictions (IAA, 2019, s. 6(2)). Despite this, the provisions for a section 82 environmental effects determination make it impossible to incorporate these principles into the Project.

For example, the IAA mandate is undermined by the fact that it is not undergoing a federal impact assessment nor collaborating with the ongoing SLRA. A federal impact assessment would require consideration of Project alternatives, such as deferring decommissioning until DGR availability to apply the precautionary principle, while integration with the SLRA would allow consideration of cumulative effects (Table 12).

Furthermore, the IAA permits the CNSC to dismiss concerns about the Project as outside its scope. The CNSC classified essentially all public comments related to radioactive waste management as out of scope and dismissed concerns regarding coordinated G1WF and Gentilly-2 decommissioning, public engagement, Indigenous rights, and other issues (CNSC, 2026b; WSP, 2026). Tables 12 and 13 demonstrate that by allowing the scoping out of these concerns, the IAA undermines both its own mandate and the mandate of the CNSC.

Table 12. Concerns that are not being addressed by the Project, and the aspect of the IAA mandate that is undermined by this scoping out.

Concern (scoped out or not considered)	Corresponding Aspect of IAA Mandate
Consideration of Project alternatives	Fosters sustainability; applies the precautionary principle
Collaboration with SLRA	Considers the cumulative effects of physical activities
G1WF Decommissioning Waste Transportation, Storage, and Disposal	Respects the rights of Indigenous peoples; applies the precautionary principle
Coordinated Decommissioning of Gentilly-1 and Gentilly-2	Promotes cooperation among jurisdictions

Table 13. Concerns that are not being addressed by the Project, and the aspect of the CNSC mandate (CNSC, 2025c) that is undermined by this scoping out.

Concern (scoped out)	Corresponding Aspect of CNSC Mandate
Timely availability of environmental documents	Disseminating objective scientific, technical and regulatory information
Independence of CNL	Strengthening confidence through open communication and engagement to build and foster trusted relationships with Indigenous Nations and other communities in Canada and globally
Better government oversight	
First Nations' consent	
Public engagement	

The fact that these crucial components of the Project can be considered out of scope reveals serious inadequacies in the IAA. Concerns about party independence, government oversight, First Nations' consent, public engagement, and waste are raised in the context of minimizing the Project's adverse impacts on the environment, the public, and Indigenous peoples. It is also particularly egregious to dismiss concerns about First Nations' consent, given that respecting the rights of Indigenous peoples is not only part of the IAA mandate but also a federal responsibility driven by the honour of the Crown (Natural Resources Canada, 2023).

In addition, the scoping out of waste management allows the nuclear industry to continue its pattern of avoiding end-of-life planning (Blaise & Stencil, 2021). As it stands, the burden of poor waste management falls on the public and Indigenous communities, who are now forced to contend with the non-permanent storage of radioactive waste near their communities and the double handling of this radioactive waste along public roads. The IAA should not allow the CNSC, AECL, and CNL to offload this burden in this manner.

To summarize, the current impact assessment law is inadequate for properly considering the impacts of a project like the G1WF decommissioning. Section 82 environmental effects determination undermines the mandates of the IAA and the CNSC. Given that impact assessment law is inadequate, and individual projects are manifestations of that law and its inadequacies, it is relevant to raise the concerns mentioned above in this section in the context of the Project at hand. Engaging with individual projects is often the best and only way for the public to express valid concerns about impact assessment law, and we expect the CNSC, AECL, and CNL to engage with our concerns in good faith.

5 Questions to be Answered

Throughout this report, we have outlined various concerns regarding the decommissioning of the G1WF and the way the project is being carried out. We ask that the CNSC and AECL take these concerns seriously and engage with them in good faith. We provide recommendations on these concerns in Section 6. However, we also include the following questions, which we request that the CNSC and AECL address specifically during the hearing for this project:

1. In the *Environmental Protection Measures* (WSP, 2026), the "Coordination of remediation with Hydro-Québec for the entire Gentilly site" is considered outside the scope of the Project (p. 43). Does this mean that the alternative of jointly decommissioning the G1WF and the Gentilly-2 Waste Facility has not been considered at all?
2. Can you guarantee that the Project does not set a precedent for future decommissioning projects involving reactors with longer operating histories? If so, please explain how and provide specific examples.
3. Is it reasonable to permit individual radiation doses up to 1 mSv? If so, please explain why this approach is preferable to minimizing cumulative exposure.
4. What are the health, financial, and environmental costs of transporting demolition waste to CRL for interim storage, rather than waiting until it can be sent directly to a permanent repository?
    a. Does this double handling also double the health, financial, and environmental impacts?
    b. What levels of public and worker exposure to alpha, beta, gamma, and neutron radiation are associated with dismantling the G1 reactor, placing its components in shipping containers, transporting the containers to CRL, and leaving them there in interim storage?

    c. Is it reasonable to move the G1 decommissioning waste multiple times on public roads?
5. Does the ALARA Principle for a decommissioning project apply only to the licensed dismantling period, or also to post-dismantling waste storage?
6. What is the purpose of carrying out this decommissioning project now, ahead of the expiration of the Storage With Surveillance licence in 2034?
    a. Why isn't CNL waiting until the end of the licence term to apply for a licence renewal?
    b. Is it reasonable to amend both the licensing basis and the licence duration without an oral hearing?
    c. The *Environmental Protection Measures* state that "Avoiding double handling of waste is a generally accepted industry practice, however, delaying decommissioning of the G1WF will delay the overall remediation and restoration of the Gentilly site" (WSP, 2026, p. 43). Why is the remediation of the Gentilly site urgent enough to justify double handling of waste?
7. Why is CNL proposing that the amended licence be valid for 15 years, while the decommissioning of the G1WF be completed by 2035, a timeline that CNL itself describes as "ambitious" (CNL, 2026a)? Does an ambitious, i.e., potentially rushed, timeline increase the risk that the Project will cause significant adverse environmental effects?

6 Conclusion and Recommendations

Throughout our intervention, we have demonstrated that decommissioning the Gentilly-1 Waste Facility is marked by procedural shortcomings, unresolved scientific uncertainties, and substantial risks to the environment, public and worker health, and Indigenous rights.

The CNSC and CNL restricted access to essential documents, including the *Environmental Effects Review,* the *Preliminary Hazard Analysis*, the *Bounding Accident Analysis*, and the *Safety Analysis Report*, and made other important documents, such as the *Environmental Protection Measures*, available late in the Project process. Public access to information about Project developments, including the Request for Ruling, public comments, and the designation request, has been prevented or impeded. Together, these concerns demonstrate a lack of transparency that prevents the public and Indigenous rights-holders from meaningfully participating in the Project.

Furthermore, our research identified serious gaps in the radionuclide inventory, including the omission of long-lived activation products such as calcium-41 and chlorine-36. These omissions undermine confidence in the accuracy of CNL's waste characterization and raise the possibility of improper waste classification, handling, and disposal. The decommissioning of the G1WF risks radionuclide contamination of the St. Lawrence River and the soil surrounding the Gentilly site. Potential receptors of this contamination include the public, workers, and at-risk species. As a result, the Project requires an approach grounded in the

ALARA Principle and the precautionary principle, but the CNSC and CNL have failed to demonstrate this.

In addition, scoping out all concerns related to decommissioning waste transportation and storage is inappropriate. The DGR is decades from being operational, the NSDF is facing delays, and an eventual permanent facility for intermediate-level waste remains uncertain, forcing a double handling of waste that goes against industry best practices. The lack of a comprehensive waste management plan falls short of national and international decommissioning standards and increases the likelihood that the Project will have significant adverse effects on the environment and on the public.

Moreover, the Project falls short of the Crown's constitutional obligations and of Canada's commitment to implementing UNDRIP, both of which are cited in *Canada's Policy for Radioactive Waste Management and Decommissioning*. The Project cannot proceed without meaningful Indigenous engagement, including adherence to FPIC standards.

Ultimately, the IAA's provisions for Section 82 environmental effects determinations are inadequate. The inability to consider project alternatives, cumulative effects, or long-term waste management options contradicts the IAA's own sustainability and precautionary mandates. Meanwhile, the CNSC's choices throughout this process, particularly the lack of transparency and the decision to hold a hearing in writing rather than in person, undermine its mandate to foster trust, uphold scientific integrity, and ensure informed public engagement.

The CNSC and CNL are responsible for ensuring that the decommissioning of the G1WF is carried out safely and that public and Indigenous engagement is thorough and meaningful. They fell short of this responsibility when they planned and authorized the secret transport of G1 spent fuel to CRL, a shortcoming compounded by the Canadian nuclear industry's responsibility to compensate for its historical poor management of nuclear waste. This is further compounded by the procedural and scientific issues we have described throughout our intervention. These shortcomings, and the risks they pose to the public, workers, the environment, at-risk species, and Indigenous peoples, may yet be rectified by the CNSC and CNL.

Our findings demonstrate that the Project is likely to cause significant adverse environmental effects and fails to meet the standards of transparency, scientific rigour, or protection of Indigenous rights required of federal authorities.

Based on these findings, we offer the following recommendations for the CNSC:

1. The hearing on the licence amendment, the environmental effects determination, and the adequacy of Indigenous consultation, currently scheduled for July 2026, must be held in person.
2. Canadian Nuclear Laboratories must produce a new detailed decommissioning plan (DDP) that addresses gaps in decommissioning cost estimates and the

radionuclide inventory and includes a waste management and transportation plan.

3. Canadian Nuclear Laboratories must conduct a comprehensive radiological characterization of the Gentilly-1 Waste Facility and make its results and findings publicly available.
4. Canadian Nuclear Laboratories must make the *Environmental Effects Review, Preliminary Hazard Analysis*, *Bounding Accident Analysis*, and *Safety Analysis Report* publicly available.
5. The Commission for the Project hearing must:
    a. Conclude that the Project is likely to have significant adverse environmental effects.
    b. Conclude that the Canadian Nuclear Safety Commission did not fulfil its obligations to consult with and, where appropriate, accommodate Indigenous peoples, pursuant to section 35 of the Constitution Act, 1982.
    c. Reject the recommendation from CNSC Staff that Canadian Nuclear Laboratories, the licensee, (1) is qualified to carry out the activities the proposed licence would authorize, and (2) will, in carrying out those activities, make adequate provision for the protection of the environment, the health and safety of persons, the maintenance of national security, and measures required to implement international obligations to which Canada has agreed.
    d. Ask the Government of Canada to issue a new financial guarantee for the G1WF before making any decisions on licensing or environmental impact.

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Appendix 1. SCCF Comments on the Determination Decision Regarding the Decommissioning of the G1WF.

Submitted on February 5, 2026 via email to:

The Honourable Julie Dabrusin, Minister of the Environment, Climate Change, and Nature, ministre-minister@ec.gc.ca
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CNL Communications and Indigenous Relations, Canadian Nuclear Laboratories, communications@cnl.ca
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Regional Assessment of the St. Lawrence River Area, Impact Assessment Agency of Canada, stlawrence-saintlaurent@iaac-aeic.gc.ca

Introduction and Context

The Sierra Club Canada Foundation (SCCF) empowers people to be leaders in protecting, restoring and enjoying healthy and safe ecosystems. Our active Quebec Chapter does work related to conservation, advocacy, environmental education and increasing Quebecers' exposure to nature.

SCCF has received participant funding from the Canadian Nuclear Safety Commission (CNSC) to prepare a written intervention for a July 2026 hearing to consider Canadian Nuclear Laboratories' application to amend its waste facility decommissioning licence for the Gentilly-1 Waste Facility (G1WF). The amendment would allow CNL to proceed with full decommissioning of all buildings and structures at the facility, including the Gentilly-1 nuclear reactor that operated intermittently from 1971 to 1978. The reactor is the main structure at the G1WF, which is located in the municipality of Bécancour, Quebec.

In addition to the July 2026 CNSC licensing hearing, a "federal lands" impact assessment of the G1WF decommissioning project began on December 15, 2025 (Reference number 90092). A Notice of Intent for the "Decommissioning of the Gentilly-1 Waste Facility" was posted on the registry of the Impact Assessment Agency of Canada. It says that two federal authorities—Atomic Energy of Canada Limited (AECL, owner of the G1WF facility) and the CNSC—must both make a determination as to whether the proposed project activities are likely to cause significant adverse environmental effects. This must be done before a licensing decision is made.

An assessment of "federal lands" projects is required by Section 82 of the *Impact Assessment Act*:

> **82** An authority must not carry out a project on federal lands, exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that could permit a project to be carried out, in whole or in part, on federal lands or provide financial assistance to any person for the purpose of enabling that project to be carried out, in whole or in part, on federal lands, unless… the authority determines that the carrying out of the project is not likely to cause significant adverse environmental effects…

This document serves as our comments for the Section 82 determination of significant adverse environmental effects. We are providing our comments to the Impact Assessment Agency of Canada for posting on the Impact Assessment Registry, and send copies to the CNSC, AECL, and Canadian Nuclear Laboratories.

The G1WF decommissioning project will take place on land owned by the provincial Crown corporation Hydro Quebec (see below), but is treated as a "project on federal lands" because the G1WF facility is a federal liability being managed on behalf of AECL (a federal Crown corporation) by Canadian Nuclear Laboratories (a private company).

Section 84(1)(d) of the *Impact Assessment Act* requires that an authority's determination includes consideration of comments received from the public. The public comment period for the G1WF decommissioning project ends on February 5, 2026.

We will describe the unusual circumstances under which this project would be carried out. We will also describe our concerns about the credibility of AECL and CNSC as federal authorities for this project. Given these circumstances and concerns, we are seeking assistance from the Minister of Environment, Climate Change, Environment, and Nature, your departmental officials, and from the Impact Assessment Agency of Canada, to ensure that the project is assessed in a manner that upholds the integrity of the impact assessment process. We recommend a determination that this project has the potential to cause significant adverse environmental effects, and the scale and scope of the risks and activities involved warrant assessment by a review panel.

Coordination of Gentilly-1 and Gentilly-2 Decommissioning

As noted above, Hydro Quebec—a Crown corporation wholly owned by the Government of Quebec—owns the G1WF property. Two reactors—Gentilly-1 (G-1) and Gentilly-2 (G-2)—are on the Gentilly site, immediately adjacent to each other (Figure 1).

We suggest that, for financial and environmental reasons, consideration must be given to coordinating decommissioning activities for the two reactors. Why is this?

Although Hydro Quebec does not have immediate plans to fully decommission the G-2 reactor, its participation in decommissioning of the G-1 reactor would provide valuable and relevant experience.

Furthermore, Hydro Quebec's Gentilly property will unavoidably be affected by the increased traffic, noise, dust, potential radioactive emissions, and other environmental effects from decommissioning the G-1 reactor. There may be significant contamination of the soil beneath the G-1 reactor owing to past releases of mobile radionuclides such as tritium and carbon-14. Metal and concrete components made radioactive by neutron absorption during operation of the G-1 reactor will unavoidably be exposed to the elements during decommissioning activities, creating a high potential for radionuclide migration.

Safe waste management will be particularly important to avoid adverse environmental effects. Coordination of G-1 and G-2 decommissioning could help to ensure that waste is safely stored, hazardous substances are kept out of the biosphere, and impacts on the St. Lawrence River and surrounding habitats are minimized. We recommend consideration of ways to coordinate the activities of Canadian Nuclear Laboratories and Hydro Quebec on the Gentilly property owned by the latter.

A further consideration is that simultaneous decommissioning activities for both reactors would likely significantly reduce overall environmental impacts and costs. Combining two separate periods of physical disturbance into one would limit traffic and noise. On-site waste management facilities could be shared. Trained workers would have a continuous period of employment.

In support of the concept of a coordinated decommissioning process for the two reactors, we note that Hydro Quebec has applied to the CNSC to renew its decommissioning license for the G-2 reactor for a 20-year period until June 2046. During this period the reactor would remain in "storage with surveillance," with decommissioning activities limited to the demolition of buildings and structures containing little or no contamination.

A CNSC hearing on the Hydro Quebec license renewal application is scheduled for March 2026. However, since Hydro Quebec's project decommissioning activities for the 2026-2046 period do not differ materially from current activities, a short-term extension of the current license would not burden Hydro Quebec or the CNSC. This would provide time for Environment and Climate Change Canada, other federal bodies, and Hydro Quebec, to assess the pros and cons of coordinated decommissioning of the entire Gentilly site.

Similarly, there would not appear to be any urgency to begin decommissioning of the G-1 reactor, given that it has been in a shut-down state for nearly a half century. Canadian Nuclear Laboratories staff could continue to operate under the existing license.

In addition, the current timeline for G-1 decommissioning appears unrealistic. The *Gentilly-1 Waste Facility Detailed Decommissioning Plan Volume 1 Program Overview* indicates that complete decommissioning of G-1, such that all structures are dismantled and all waste is removed from the site, is expected to be completed by 2034. Compare this to the planned decommissioning of the Douglas Point Waste Facility in Ontario, where the current license for decommissioning will need to be renewed in 2030, and complete decommissioning is expected by 2070.

Therefore, not only is there no urgency to decommission G-1, but we recommend against rushing such an important undertaking. Given the environmental and financial advantages to coordinating the decommissioning of both Gentilly facilities, we recommend consideration of ways to coordinate the activities of Canadian Nuclear Laboratories and Hydro Quebec on the Gentilly property owned by the latter.

Opportunities for Coordination

One option would be for a referral of the G1WF decommissioning project to a *review panel.* Given the proximity of the G-1 and G-2 reactors, and Hydro Quebec's ownership of the land, the Government of Quebec would logically be involved in a joint assessment.

Another option would be an assessment led by Quebec's Bureau d'audiences publiques sur l'environnement (BAPE), in which federal authorities could participate. In fact, Quebec's *Règlement relatif à l'évaluation et l'examen des impacts sur l'environnement de certains projets* includes "the decommissioning of a nuclear fission or fusion establishment" in its list of projects that trigger an environmental impact assessment, which includes public consultation through the BAPE.

A *Regional Assessment of the St. Lawrence River Area*, which includes the Gentilly site, is currently in progress. This provides an additional opportunity for coordination. Reactor decommissioning activities have potential to create adverse impacts on the St. Lawrence River that should be addressed in this regional assessment. Environment and Climate Change Canada can act to ensure that the regional assessment will address decommissioning and waste management activities for the G-1 and G-2 reactors.

Recommendation: We recommend a coordinated decommissioning of both the G-1 and G-2 sites, and that a joint assessment involving the federal and Quebec governments and coordination with ongoing Regional Assessment of the St. Lawrence be carried out.

Concerns: The transfer of spent fuel from G1WF without adequate consultation

During its proposed 20-year licensing period, Hydro Quebec would retain G-2 used fuel at the Gentilly site in existing storage facilities. Fuel transfer to a deep geological repository of the Nuclear Waste Management Organization (NWMO) would take place around 2050.

In contrast, Canadian Nuclear Laboratories transferred the G-1 used fuel to the Chalk River Laboratories in Ontario during the December 2024 to July 2025 period. This activity is described in Section 4.8 of the CNSC's *Regulatory Oversight Report for Canadian Nuclear Laboratories Sites: 2024*, published in December 2025, under the heading "*Gentilly-1 Fuel Transfer Project.*"

Although a CNSC license hearing on G-1 decommissioning is scheduled for July 2026, the G-1 fuel transfer—clearly a decommissioning activity—appears to have been carried out prematurely, and without proper authorization under Section 82 of the *Impact Assessment Act*. This accounts for our organization's growing concern about the credibility of AECL and CNSC as federal authorities for the Decommissioning of the Gentilly-1 Waste Facility project.

To recall, Section 82 of the *Impact Assessment Act* prohibits the financing or carrying out of a federal lands project without an environmental effects determination from the federal authority. CNSC's own *Regulatory Oversight Report* describes its active participation in the *Gentilly-1 Fuel Transfer Project*, yet it did not make an environmental effects determination as required by Section 82. AECL provided financial assistance to Canadian Nuclear Laboratories to allow the project to be carried out, but also failed to make a determination.

Section 84(1) of the *Impact Assessment Act* requires that "An authority's determination regarding whether the carrying out of the project is likely to cause significant adverse environmental effects must be based on a consideration of the following factors:

> **(a)** any adverse impact that the project may have on the rights of the Indigenous peoples of Canada recognized and affirmed by section 35 of the *Constitution Act, 1982*;
> **(b)** Indigenous knowledge provided with respect to the project;
> **(c)** community knowledge provided with respect to the project;
> **(d)** comments received from the public under subsection 86(1); and
> **(e)** the mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project that the authority is satisfied will be implemented.

Neither AECL nor CNSC considered these factors in relation to transfer of the G-1 fuel.

The project involved the storage of highly hazardous materials on the traditional, unceded territory of Algonquin First Nations. Article 29(2) of the *United Nations Declaration on the Rights of Indigenous Peoples* says that "States shall take effective measures to ensure that no storage or disposal of hazardous materials shall take place in the lands or territories of

indigenous peoples without their free, prior and informed consent." AECL and CNSC did not seek the consent of the Algonquin First Nations. They failed to solicit and consider comments from the public. They did not consider mitigation measures, such as delaying fuel transfer pending the availability of the NWMO deep geological repository.

The reason(s) that Canadian Nuclear Laboratories conducted the *Gentilly-1 Fuel Transfer Project* in advance of its July 2026 CNSC licensing hearing are unclear. This activity has the potential to damage the relationship with First Nations on whose territory the G-1 fuel is now stored and erodes public trust in AECL and the CNSC, and their credibility as federal authorities under the *Impact Assessment Act*.

Recommendation: A full accounting of the decision-making with regard to the transfer of the *Gentilly-1 Fuel Transfer Project* should be made public, and appropriate Nation-to-Nation communication be initiated and reparations made to Indigenous nations whose UNDRIP and Constitutional rights were violated through this process. Given the lack of consultation and transparent process on the part of CNL and other associated regulatory authorities that may have been involved in the decision to carry out the transfer, we recommend the Impact Assessment Agency take a lead role in overseeing this assessment going forward.

Concerns: Transport and long-term storage of nuclear waste

The *Physical Activities Regulations* are the "Project List" for the *Impact Assessment Act*. Section 28(b**)** of the *Regulations* refers to "construction and operation of… a new facility for the long-term management or disposal of irradiated nuclear fuel or nuclear waste."

Section 28(b) could be interpreted as capturing the decommissioning of the G1WF. If Canadian Nuclear Laboratories, on behalf of AECL, begins G-1 reactor decommissioning activities shortly after the July 2026 CNSC hearing, this will generate intermediate-level waste requiring long-term management: by default, a new facility.

There is no existing facility for the long-term management of nuclear waste arising from reactor decommissioning, and no immediate prospect for such a facility being built. An impact assessment of the NWMO's *Deep Geological Repository (DGR) for Canada's Used Nuclear Fuel Project* began on January 5, 2026. But this project only addresses used fuel, which is classified as high-level waste. The NWMO has suggested that it could take responsibility for a separate DGR project for intermediate-level waste, but no project is under way. In addition, while there are plans for a Near Surface Disposal Facility at Chalk River Laboratories, this facility is designed to store low-level waste, and thus does not provide a solution for the long-term storage of the intermediate-level waste that G1WF decommissioning will produce.

The waste from decommissioning the G-1 reactor could go into long-term storage at the

existing Gentilly site, or at another site, such as Chalk River. If the latter, transporting the waste would be another issue that would need to be considered during the assessment of the G1WF decommissioning project. Given that the CNSC and AECL failed to follow appropriate procedures for the transfer of spent fuel from G1WF, and the consequent diminished trust in the CNSC and AECL, it is crucial that any transportation of G1WF decommissioning waste be included in the G1WF decommissioning assessment, in order to avoid a recurrence of these poor practices.

If the G1WF decommissioning project were to be considered as a designated project under Section 28(b) of the *Physical Activities Regulations,* this would trigger a panel review led by the Impact Assessment Agency, with members appointed by the Minister of Environment, Climate Change and Nature. Under Section 43 of the *Impact Assessment Act*, "The Minister must refer the impact assessment of a designated project to a review panel." A review panel could provide yet another way to enable a coordinated decommissioning of the entire Gentilly site.

Concerns about the transport of the G-1 decommissioning waste and its long-term storage indicate that a Section 82 "Environmental Effects Determinations" by AECL and CNSC would not appear to be a reasonable or acceptable substitute for assessing the G1WF decommissioning project. This is another reason why a panel review would be a desirable approach to the G-1 decommissioning project.

Concerns: Lack of transparency with regard to the Environmental Effects Review

Another concern is that Canadian Nuclear Laboratories, on behalf of AECL, has prepared and submitted to the CNSC an *Environmental Effects Review* for the G1WF decommissioning project (*Environmental Effects Review for Gentilly-1 Waste Facility – Phase 3 Decommissioning*). However, public access to this document has been denied, even though it was submitted to the staff of the CNSC in May 2024. Provision of this document is clearly essential so that informed comments can be submitted to AECL and the CNSC pursuant to the Section 82 Notice of Intent.

The CNSC recently informed us by email that Canadian Nuclear Laboratories is currently treating this document as "Confidential," but that it will be made available at some later time before the July 2026 CNSC licensing hearing.

Recommendation: That the *Environmental Effects Review for Gentilly-1 Waste Facility – Phase 3 Decommissioning* be made public immediately and a second public consultation period be struck to allow the public and Indigenous rights holders to participate in an informed manner in the determination process.

Concerns: Hearings in Writing rather than in-person consultations

Another serious deficiency related to the G1WF decommissioning project, and to the renewal of Hydro Quebec's G-2 decommissioning license as well, is that the CNSC intends to hold a "Hearing in Writing" for both. This means that Indigenous communities and the public will not be able to appear before Commissioners face-to-face to provide comments on the impacts of these projects on Indigenous rights, or on their environmental effects.

A CNSC Hearing in Writing will not honour the Government of Canada's commitment to implementing the *United Nations Declaration on the Rights of Indigenous Peoples*. Nor would it address the provisions of the *Impact Assessment Act* that are intended to allow meaningful public participation.

Recommendation: That public hearings and other appropriate public forae be initiated to ensure Indigenous rights are respected, the duty to consult Indigenous peoples is upheld, and that there are adequate opportunities for public participation and in the assessment process.

Issues to be addressed

In summary, the Decommissioning of the Gentilly-1 Waste Facility raises concerns about the credibility of AECL and the CNSC, the adequacy of provisions for the transport and storage of decommissioning waste, the transparency of the environmental impacts of the project, and the sufficiency of public and Indigenous consultations.

Given what we know about the materials and activities involved in this project, we believe that the carrying out of this project is likely to cause significant adverse environmental effects and that it should be subjected to rigorous environmental review, including in-depth descriptions of decommissioning risks and strategies for how to manage them.

To address these deficiencies outlined in this letter, and to uphold the integrity of the impact assessment process, we ask that you take action by:

1. Referring the project to a panel review conducted by independent panel appointed by the Minister of Environment, Climate Change and Nature;
2. Collaborating with the province of Quebec for the environmental impact assessment, including public consultations through the BAPE; and
3. Including G-1 decommissioning activities in the ongoing St. Lawrence Regional Assessment.

Furthermore, there are both logistical and safety reasons for coordinating the decommissioning of G-1 and G-2. We also recommend that Minister Dabrusin and ECCC officials discuss, with your Quebec counterparts, the various options for enabling a coordinated approach to all decommissioning activities on the Gentilly property, owned by Hydro Quebec.

We also wish to see a full public accounting of the decision-making with regard to the transfer of the Gentilly-1 Fuel Transfer Project, and reparations made to Indigenous nations whose UNDRIP and Constitutional rights were violated through this process.

Finally, we are making this submission without having access to the *Environmental Effects Review for Gentilly-1 Waste Facility – Phase 3 Decommissioning* document. We do not feel we and other members of the public and Indigenous rights holders have been provided with adequate information for this consultation to be adequate or complete. We call for the immediate release of this environment effects review report and a second public consultation process for this project determination be initiated.

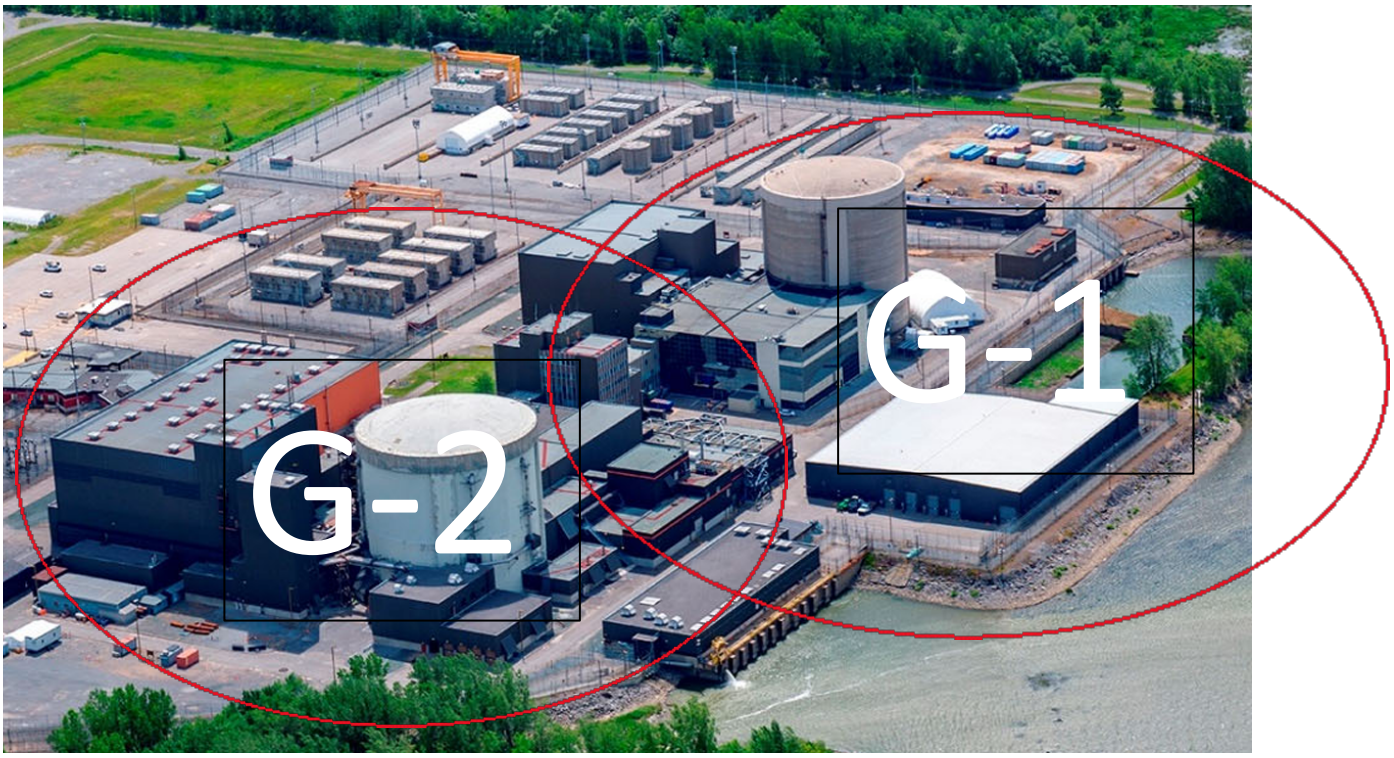

Figure 1. The Gentilly site, showing the locations of the Gentilly-1 (G-1) and Gentilly-2 (G-2) reactors, next to the south shore of the St. Lawrence River.