



**Final submission from
Evelyn Gigantes**

**Mémoire définitif
d'Evelyn Gigantes**

In the Matter of the

À l'égard des

Canadian Nuclear Laboratories (CNL)

Laboratoires Nucléaires Canadiens (LNC)

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

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

**Commission Public Hearing
Part 2**

**Audience publique de la Commission
Partie 2**

May and June 2022

Mai et juin 2022

In early 2017 when I first heard about the proposal to build a Near Surface Disposal Facility on CRL lands at Chalk River, I knew very little about CNL, about its operations at Chalk River, about what the history of nuclear activities there had been, or what the implications of those activities might be. Nor did I know of plans to rebuild the CNL laboratories, to continue to import high level nuclear waste to the CNL site, and to build another reactor at the site. In the years since 2017 I have learned enough about past, present and planned nuclear activities at Chalk River to greatly reinforce my original concerns about the proposed NSDF. I have become convinced that the Chalk River site is currently a major radionuclide threat and that projects now being considered for development on that site will make it an even more dangerous threat.

Chalk River Laboratories sits just over a kilometre from the shores of the Ottawa River, the eighth largest River system in Canada, and the major waterway feeding into the St Lawrence River. The Ottawa River has its source in Lake Temiskaming, where it flows south through the Temiskaming Dam Complex and south through other smaller dams up-river from the CRL. The whole area is within the West Quebec Seismic Zone, one of North America's larger seismic zones. In 1935 the "Temiskaming Quake" was measured at magnitude 6.2 on the Richter Scale. In my youth I met people in the Pembroke area who remembered the force of that quake. The Temiskaming dams (one on the Ontario side, one on the Quebec side), then 22 years old, survived, but have since required re-building.

In 2015 a Government of Canada Media Advisory was issued on December 24 that warned of possible flooding of the northern Ottawa River basin in a situation where "The Temiskaming Dam Complex is currently passing its maximum discharge capacity because of construction on the Ontario portion of the Dam." It also warned of continuing rain contributing to the already significant rains of previous days.

The estimates of possible water or seismic damage "estimated" by CNL in the case of the NSDF never consider the possibility of both occurring at once. And the maximum water threat to the proposed NSDF is estimated at 2 solid days of heavy 24-hour rainfall – which seems relatively light, given the effects already experienced with climate change.

It would do well for the CNSC staff, and the Commission itself, to read the compelling new report by the Department of Public Safety Canada titled The First Public Report of the National Risk Profile, which examines the risks associated with Earthquakes, Wildland Fires and Floods in areas of Canada in the light of the evident climate change occurring in this country.

<https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2023-nrp-pnr/index-en.aspx>

(The Department of Public Safety Canada is overseen by Ministers Bill Blair and Marco Mendicino.)

The Ottawa River Valley, from North to South and East to Montreal is examined with special attention, and to my mind, the information provides further reason to doubt the continued build-up of dangerous facilities and dangerous wastes close to the river at the Chalk River site.

What's now at the site?

High-Level:

- . High-level waste from 4 closed reactors: the NRX and NTU on CRL , and most recently the NPD and Whiteshell fuel wastes have been transported to the CRL.
- . High-level waste from the old CNL labs.
- . High level wastes transported from off-site commercial operations in Ontario.

Intermediate Level:

- . Mixed intermediate waste from the 2 original reactors, the old CNL labs, plus commercial operations in Ontario.

Low-level waste: from remains of the 2 first reactors and decades of CNL laboratories operations onsite.

What's coming to the site?

There will be added to these wastes shipments of Low-Level, and perhaps Intermediate-Level waste from other reactors. The CNSC has approved the transfer of Low and Intermediate nuclear wastes from the closed CNL Douglas Point prototype reactor on Lake Huron shores to the proposed NSDF at Chalk River. It seems likely the same will happen with the Low and Intermediate-Level wastes at the closed SNC Lavalin Gentilly Reactor in Quebec and eventually the Point Lepreau CANDU reactor in New Brunswick.

The fact that, in 2023, this much nuclear waste is assembled and continuing to assemble, in collections of various descriptions at the Chalk River Lands site, close to the Ottawa River, is evidence of decades of questionable oversight by AECL, the now-nominal owner of the 4,000 hectares of Chalk River Lands, the CNL (or The Canadian National Energy Alliance) which now operates those lands, and the CNSC which has had the responsibility for over-seeing safety in Canada's nuclear industry for over 22 years.

The more I have learned about the waste situation at Chalk River Laboratories site, the more strongly I feel the total inadequacy of planning and oversight that has been occurring there for decades. And the angrier I feel about plans for an NSDF. The continued importation of nuclear waste from other sites and the plans to build new "hot cell" laboratories which will be used to produce dangerous HALEU fuel products and their production wastes, plus the plan to build a new "mini" reactor – all add up to a continuing disregard for safety and good sense at the Chalk River Lands.

What is going into the NSDF

There is now what is referred to as a "licensed inventory".

The initial plan was to have a mix of low-level and intermediate-level radioactive wastes put in the NSDF because it would not be practical to identify and divide the existing CNL laboratory wastes and reactor wastes into separate categories. The public response to that proposal was overwhelmingly negative. The IAEA had established that a NSDF should contain only Low-Level or Very Low-Level nuclear waste.

In response CNSC staff consulted with CNL and came up with the position that the NSDF was to be a Facility that would be for Low-level waste only – or almost only. The vagaries of what came to be known as the “Licensed Inventory” are painful to examine. (see pp 9 and 10 of my submission dated March 28, 2022.)

To this volume of waste, CNL has proceeded to licensing for the building and operation of new nuclear laboratories which will add some very high-level wastes generated in specialized “Hot Cell” lab work to produce “new” and “advanced” fuels. These would be HALEU or enriched fuels intended for use in new reactor models – SMRs.

In addition CNSC is currently reviewing an application to license a mini SMR proposed for the Chalk River Lands by Global First Power, (a wholly-owned Canadian subsidiary of the American Ultra Safe Nuclear Corporation) and OPG.

OPG is currently considering the purchase of New Brunswick Power Corporation which would mean it is OPG that would be taking on the mandate to build two other models of SMRs at Pointe Lepreau, New Brunswick. In the meantime, OPG has now become a partner in the new CNL organization – “The Canadian National Energy Alliance” which operates the Chalk River facilities. The four firms involved with the new CNEA are Ontario Power Generation, SNC Lavalin, and two American-based firms, Fluor and Jacobs.

When the development of the Nuclear Safety Disposal Facility was first proposed as a way of managing a portion of the waste accumulated at the Chalk River site, CNL first suggested it would be capable of safely containing both low and intermediate wastes in a mound that would be partly below-ground, partly above.

The response to that proposal was not positive – either by members of the general public, concerned Indigenous groups, or, finally, by staff of the CNSC. CNL revised its licensing application to have the NSDF be limited to containing only “Low-Level Waste.”

There is nothing in the latest outline of approved waste contents that inspires confidence the waste placed in the proposed NSDF will meet reasonable definition as Low Level Waste. Nor does the latest outline of how the “defined” questionable and dangerous “Low-Level Waste” will be monitored and treated so that it will not be a hazard in the Ottawa River. The whole process that has been followed by the CNSC in examining the proposed development of the NSDF has been inadequate. CNSC staff have lacked rigour in approving CNL responses to informed public questioning. The concerns expressed by hundreds of municipal councils on the Quebec and Ontario shores of the Ottawa River have been effectively disregarded by the appointed members of the CNSC.

The CNSC staff have explicitly rejected the notion that the Indigenous peoples of the Ottawa Valley have the right to become a “Willing Host” and exercise “free, prior and Informed consent” on the matter of whether the proposed NSDF should be built, purportedly because the CNSC is not proposing the NSDF siting, but merely adjudicating whether a particular

proposal by CNL at Chalk River should be approved! So much for UNDRIP as far as the CNSC is concerned! (see my presentation of May 31, 2022).

But the new First Public Report of the National Risk Profile takes a very different approach:

8.2 Findings relative to the five Emergency Management Strategy priority areas [Footnote310](#)

8.2.1 Priority 1: Enhance whole-of-society collaboration and governance to strengthen resilience

The baseline capability strength for **capabilities 2: whole-of-society governance** and **4: Indigenous collaboration** were assessed by NRP capability assessment participants as having a serious shortfall nationally. In looking closer at **capability 2: whole-of-society governance**, the capacity of ‘people and organization’ and the competence of ‘policies, processes, and practices’ were frequently selected as areas for improvement. Many jurisdictions and regional authorities have different rules and processes that are not publicly available.

Findings from **capability 4: Indigenous collaboration** indicate gaps in emergency management capabilities in such categories as “people and organization”. Participants noted that Indigenous organizations require more resources, data, and staff than is often available to them, to undertake and participate meaningfully in emergency management activities because of the disproportionate risk and impacts they experience from disasters. Generally, there was strong support for self-determined and co-development approached, such as the one envisaged under [Indigenous climate leadership](#) [Footnote311](#), and efforts to streamline engagement and move quickly from assessments and planning to ‘boots on ground’. Additionally, some Indigenous communities are located in hazard-prone areas making it difficult to support emergency evacuations. Regional authorities require cultural sensitivity training when collaborating with Indigenous communities in pre-event planning and post-event response/recovery, which is not currently standardized across Canada.

Participants of the NRP assessment process suggested standardizing a national incident management system and that adopting common emergency management terminology would be beneficial. [Footnote312](#) Respect for jurisdictional divisions and emergency management legislation is important to retain while continuing the vital work to strengthen local, provincial, and federal response and accountabilities to jointly enhance resilience. Through improved evidence and sharing of lessons learned across jurisdictional boundaries, through the NRP, is an opportunity to improve disaster preparedness, response, and recovery through increasing transparency.

Emergency management is a shared responsibility and everyone has a role to play. As each group — government, academia, industry, NGOs, communities, and citizens — develops a stronger understanding of their own agency to respond during disaster events, everyone benefits from higher levels of community resilience. Rural, remote, and Indigenous communities’ participation in emergency management planning initiatives and strategies can

be helped through community-focused engagements, education and programming in order to appropriately consider regional and community-based differences. [Footnote313](#)

Through all types of emergencies, working in partnership with Indigenous peoples and communities as equal partners will help to better integrate community-based knowledge, strengths, and vulnerabilities into emergency planning and risk awareness discussions. This will also promote the inclusion of culturally competent emergency management practices and traditional knowledge across all four pillars of emergency management. Furthermore, full participation of Indigenous partners will support efforts to mitigate ongoing inequities between Indigenous and non-Indigenous peoples and help to foster relationships between key emergency management and Indigenous partners. The value of knowledge and practice of Indigenous communities is important for instituting cultural practices that reduce disaster risks.

Further, the CNSC review of the CNL proposal for the Chalk River NSDF development, while it was recently paused in an attempt to “properly” consult the Ottawa River First Nations (and by this convince those First Nations that the NSDF is an acceptable way of dealing with part of the large amounts of radionuclide waste already at Chalk River) continues to be fraudulent in its overall approach.

For example, members of the non-Indigenous public who made NSDF presentations to the last public consideration by the CNSC (the so-called “final” public discussion by the Commission, in late May 2022) have been directed that this current “final-final” round of submissions by non-Indigenous members of the public must be limited – it is not permitted to raise new issues:

“Written final submissions As previously detailed in the revised notice of public hearing including procedural guidance for questions and written final submissions, intervenors who made oral submissions during Part 2 of the public hearing have the option to make written final submissions to the Commission. Written final submissions may briefly summarize the position and/or the opinion of the writer with respect to this matter. New information may not be presented in final submissions. Written final submissions shall be limited to a maximum of 5,000 words for registered intervenors and 30,000 words for CNL. Final submissions that do not follow these instructions will not be accepted.”

<https://www.cnl.ca/cnsc-commission-procedural-direction-update-nsdf-january-31-2023/>

I am choosing to explicitly disregard this warning, in a very brief addition to my earlier submissions. The reason is that it is now quite clear that the new hot cells laboratories replacing the old hot cell labs at the Chalk River site are being designed to reprocess Candu fuel and create new SMR enriched fuels. This will mean more dangerous pyro-processing laboratory operations and result in a significant increase in the amount of high-level radionuclides at the Chalk River Lands.

In mid-2021 I began what turned out to be a futile attempt to access information through the AECL FOI system about the then-current and planned operations of the hot cells laboratories at the Chalk River site. In particular I asked for:

- 1) Documentation that would describe the use of the Canadian Nuclear Research Initiative Program for the development and production of nuclear fuel for SMR reactors in dollar amounts, for both CNL and SMR companies.
- 2) Documentation that would confirm whether CNL produced TRISO fuel at Chalk River and what was the source of TRIStructural-ISOtropic particles at the centre of the TRISO fuel CNL produced.
<https://neutronbytes.com/2021/04/17/triso-fuel-successfully-fabricated-in-canada/>
- 3) Documentation concerning whether CNL's current license for Chalk River includes the use of pyro-processing to work on other fuels – for example fuel for the Moltex SMR."

Although I knew from proud announcements by CNL that CNL had manufactured TRISO fuel, I could not get confirmation that it was manufactured at Chalk River. Nor did I ever get clear answers on the funding structure of the Canadian Nuclear Research Initiative that would be supporting the projects of private firms at the Chalk River laboratories. Nor was it confirmed to me that pyro-processing of nuclear waste fuel to produce the HALEU fuel for the proposed Moltex SMR would take place at the Chalk River site.

However it has since become evident through recent public discussions surrounding the proposal to build the 2 SMRs at Point Lepreau, that the "advanced" fuels required will not initially be produced at the Pointe Lepreau site.

That means they will be produced at Chalk River.

It is incomprehensible to me that the Chalk River site is becoming home to further dangerous operations and further dangerous materials. The Canadian Nuclear Laboratories Sites Regulatory Oversight Report – 2021 raises concern about the following issue in the ROR published in September 2022:

"In 2021, all SCAs are rated as satisfactory (SA) for all CNL sites with the exception of the Security SCA at CRL and WL rated as below expectation (BE)."

The enrichment of nuclear fuel involves increases in the level of plutonium in the new fuel. It also makes the resulting "advanced" fuel more attractive to terrorists and/or military aggression.

In a time when Canadian Press has reported (March 8, 2023) "Ransomware attack hits engineering company working on military bases, power plants", it's time for security to be a stronger concern than ever before. Cybercrime is increasing the importance of cyber-security and the production of "advanced" fuels makes sites more attractive to cybercrime. Chalk River is not a place where an increase in vulnerability to cybercrime should be allowed.

What does this say about the decision to build an NSDF on the Chalk River site? In general I believe everything that has happened on that site since the production of plutonium for British and American nuclear weapons in the 1940s, the history of reactor accidents there, the careless accumulation of High, Medium and Low-level nuclear wastes, and the current decision to produce new and more dangerous fuels at the laboratories is evidence of continuous neglect of safety concerns about the Chalk River site.

I do not consider

- . the installation of the type of NSDF planned,
 - . at the location planned,
 - . containing the dubious categories of waste planned,
 - . with the loosely-described “mitigating measures” planned for dealing with radionuclide effluents
- to be acceptable.

And I wish it the CNSC, the nuclear “regulatory” body which reports to the government and the Canadian public through the industry-promoting Department of Natural Resources, reported instead directly to the Parliament of Canada and that the CNSC shed its current mission of promoting the expansion of the nuclear industry in Canada.

Evelyn Gigantes