



CMD 25-H101.10

Date: 2025-05-06

**Written Submission from
Northwatch**

**Mémoire de
Northwatch**

In the matter of

À l'égard d'

Ontario Power Generation Inc.

Application to amend the Pickering Waste Management Facility to authorize construction and operation of the Pickering component storage structure

Ontario Power Generation Inc.

Demande de modification du permis de l'installation de gestion des déchets de Pickering pour autoriser la construction et l'exploitation de la structure de stockage des composants de Pickering

**Public Hearing - Hearing in writing based
on written submissions**

**Audience Publique - Audience par écrit
fondée sur des mémoires**

July 2025

Juillet 2025

NORTHWATCH

May 6, 2025

Canadian Nuclear Safety Commission
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Sent by email interventions@cnsccsn.gc.ca

Ref. 2025-H-101

Commission Members:

Re. Ontario Power Generation's application to amend the waste facility operating licence for the Pickering Waste Management Facility

On September 18th 2024 the Canadian Nuclear Safety Commission (CNSC) issued a notice of its intent to conduct a public hearing based on written submissions in winter 2025. A revised notice was issued on February 17, 2025 announcing delays in submission dates for CNSC staff's and OPG's submissions to March 7, 2025 and a subsequent revision of the deadline for interventions and the hearing-in-writing.

Ontario Power Generation Inc. (OPG) has made an application to amend the Class IB waste facility operating licence for the Pickering Waste Management Facility (PWMF) to authorize the construction and operation of a new structure called the Pickering Component Storage Structure (PCSS). According to the notice, the PCSS would be for storage of low- and intermediate-level radioactive waste generated during future decommissioning and proposed refurbishment activities at the Pickering Nuclear Generating Station.

A panel of the Commission will consider written submissions from OPG and CNSC staff, as well as written interventions from members of the public. The Commission will then deliberate and render a decision on OPG's application. A decision from the Commission is anticipated in spring 2025.

In a decision issued on 6 February 2018, following the October 2017 hearing with respect to an application dated 28 October 2016, the operating license for the Pickering Waste Management Facility was renewed for a ten year period, ending 31 August 2028.

This is the second amendment to the Pickering Waste Management Facility license that OPG has sought in in the second half of this licensing period. In 2024 the CNSC held a hearing in writing on an application from OPG to change the licensing basis for the PWMF to authorize wastes being removed from the irradiate fuel bay that has been cooled for only 6 years, rather than the required 10 years.

CNSC staff has concluded that OPG's application should be approved. Northwatch disagrees with these conclusions and with the CNSC staff recommendation, for the reasons set out in later sections of this submission.



Northwatch's Interest

Northwatch is a public interest organization concerned with environmental protection and social development in northeastern Ontario. Founded in 1988 to provide a representative regional voice in environmental decision-making and to address regional concerns with respect to energy, waste, mining and forestry related activities and initiatives, Northwatch has a long term and consistent interest in the nuclear chain, and its serial effects and potential effects with respect to northeastern Ontario, including issues related to uranium mining, refining, nuclear power generation, and various nuclear waste management initiatives and proposals as they may relate or have the potential to affect the lands, waters and/or people of northern Ontario.

Northwatch is interested in Ontario Power Generation's proposed approach to nuclear waste management and containment over various time frames. Northwatch's key areas of focus in licencing reviews are OPG's management of the radioactive wastes it generates, over various time frames. Throughout OPG's operations, Northwatch is interested in how operations and operational decisions affect fuel conditions, waste volumes, and waste attributes. In this review, Northwatch is particularly interested in how OPG has addressed the issues of storage design and in safety and dose related to radioactive waste management, and in CNSC's staff review of the OPG application.

For the record, Northwatch did not apply for or receive participant funding to support our review.

Context

The Pickering Waste Management Facility is co-located with the Pickering Nuclear Generating Station (NGS) on the north shore of Lake Ontario, in the City of Pickering, and is located 32 km northeast of downtown Toronto. Owned and operated by Ontario Power Generation Incorporated (OPG), the Pickering NGS consists of eight CANDU pressurized heavy water reactors and associated facilities. Of the eight reactor units, Pickering "A" units 1 through 4 are no longer operating. Pickering "B" units 5-8 s have a nominal electrical output of 516 MWe. CNSC has approved another in a series of extensions of operation for units 5-8 units until the end of 2026.

The Ontario government has approved Ontario Power Generation's (OPG) plan to proceed with the Project Definition Phase, the next step toward refurbishing Pickering Nuclear Generating Station's "B" units. OPG's "Project Definition Phase" is projected to be carried out through 2026, with a budget of \$4.1 billion budget, part of a total of \$6.2 billion in "development" work.¹ There has no public announcement or notice of OPG having applied for an amendment of their operating license to accommodate refurbishment of Pickering "B" units 5 to 8.

Pickering Waste Management Facility is licensed separately under a Class 1B waste facility operating licence and accepts and stores irradiated fuel waste from the Pickering NGS.²

¹ <https://news.ontario.ca/en/release/1005620/ontario-advancing-plan-to-refurbish-pickering-nuclear-generating-station>

² CMD 18-H6, page 1

Substantive Issues

Incomplete Application

According to the Commission Member Document (CMD) provided to the Commission by CNSC staff, on May 31, 2024 OPG submitted an application to amend the PWMF licence to authorize the construction and operation of a new structure identified as the Pickering Component Storage Structure (PCSS), stating that the structure is required for the storage of low- and intermediate-level waste resulting from the proposed refurbishment activities of PNGS Units 5 to 8, noting that “authorization to perform refurbishment activities is not within the scope of this application or CNSC staff’s Commission member document (CMD)” and that “OPG must submit a separate application requesting authorization from the Commission to perform refurbishment activities” and purporting that the process for license amendment to permit refurbishment is “a process that is not influenced by a decision on this application to construct and operate the proposed PCSS.”³

In the same section of their CMD, CNSC staff indicated that “the base case for the safety analysis considered a PCSS design based on the Darlington Waste Management Facility Retube Waste Storage Building and the Western Waste Management Facility Retube Waste Containers (RWCs)”⁴, acknowledging that the safety analysis had not been undertaken for the actual structure(s) as designed for Pickering.

In a later section, CNSC staff state that OPG will provide the design requirements, environmental management plan, and construction verification plan to the Commission or a person authorized by the Commission - CNSC staff - for review and acceptance at some later point in time, after the license amendment has been authorized by the Commission.⁵

Similarly, CNSC staff present that “OPG has committed to submitting, prior to commencing construction activities, a document package containing design requirements, an environmental management plan, and a construction verification plan” and that the document package will be reviewed by CNSC staff and then “a person authorized by the Commission must then accept the document package”.⁶

These design requirements and plans should have been developed and submitted as part of the application, or at minimum as supplementary documentation prior to the application hearing. It is unclear from the CNSC staff CMD description that “OPG drew from existing experience from similar projects at their other sites to make design assumptions for the proposed PCSS” what stage of development the PCSS is in. The CMD provides a general description - concrete shielding panels around the entire building, above the shielding panels is an industrial roof with rockwool insulation between steel sheets, the floor of the building was modelled as 30 cm thick concrete, the total length of the building modelled was 60 m, and the total width modelled was 55 m – but it is unclear

³ CNSC CMD 25-H101, Page 1

⁴ CNSC CMD 25-H101, Page 1

⁵ CNSC CMD 25-H101, Page 6

⁶ CNSC CMD 25-H101, Page 14

whether these elements are actually a description of the PCSS design, or simply a generic listing of features that have been found in other OPG constructed waste storage facilities.

Northwatch's view is that the current application to amend the Pickering Waste Management Facility is premature for two reasons: there is no application before the Commission related to the potential refurbishment activities, and there is no actual design for the Pickering Component Storage Structure included in the OPG application or described in the CNSC staff CMD.

REQUEST: that the Commission defer consideration of an application by OPG to amend the PWMF license to include the PCSS until such time as a) an application to amend the PROL for the PNGS Units 5-8 has been received and b) a detailed design and plans have been submitted for the construction and operation of the PCSS.

REQUEST: should the Commission at some time in the future receive an application for refurbishment and detailed design and plans for the construction and operation of a waste management structure for the resulting refurbishment waste these two amendments should be considered and reviewed jointly, and a full public hearing should be held to consider the two applications.

Waste Characterization

The CNSC staff CMD⁷ includes a very general description of the estimated waste quantities that would be stored within the proposed PCSS (i.e. 48 steam generators, plus pressure tubes, feeders, calandria tubes, and end fittings) but neither the CNSC staff CMD or the OPG application or CMD provide a sufficiently detailed characterization of the wastes.

OPG has also not yet developed or provided their Waste Acceptance Criteria (WAC) document for the proposed PCSS, and according to the CNSC staff CMD OPG's commitment is to do so AFTER the amendment has been approved, and that when they do develop and provide the WAC it will be based on the safety assessment for this application – which was based on other storage structures and not the still-to-be-designed PCSS – where “the WAC in place at another OPG WMF undertaking similar activities was considered.”⁸

The CNSC staff CMD accepts that the PWMF WAC would not be updated until some point in the future – after the license amendment has been authorized – and that the WAC would include limits on the total dose rates (gamma plus neutron) for each steam generator and RWC to be received and stored in the proposed PCSS.⁹

CNSC assigns to OPG further statements that “although wastes received by the PWMF are expected to be characterized prior to receipt, the need may arise for future re-characterization efforts at the

⁷ CNSC CMD 25-H101, Page 1

⁸ CNSC CMD 25-H101, Page 11

⁹ CNSC CMD 25-H101, Page 25

PWMF. Operational wastes generated within the proposed PCSS would also be subject to characterization”.¹⁰

These are matters of significance. Insufficient information is provided, and it is inappropriate for the public be denied the opportunity to review and comment and for the Commission to be excluded from the decision-making process. The Commission is the decision-maker and must assert this to both staff and the licensee.

CNSC staff is proposing that the Commission approve the amendment and then OPG will meet existing PWMF licence conditions. Should not be a given that OPG will meet all license conditions? CNSC staff note that these licence conditions are currently specific to DSC storage buildings; not to the PCSS, but that the conditions would be revised “should the Commission approve this licence amendment”¹¹

REQUEST: In any future applications for an amendment to the PWMF license to include additional waste structures – or before a decision is rendered on this application – the Commission should require a detailed characterization of the waste stream that will be housed in the proposed additional structure(s).

REQUEST: In any future applications for an amendment to the PWMF license to include additional waste structures – or before a decision is rendered on this application – the Commission should that OPG submit Waste Acceptance Criteria specific to the proposed PCSS as part of their application to amend the license.

Risk Assessment and Acceptance

The CNSC staff CMD includes a summary statement that “the construction and operation of the proposed PCSS will not result in any unacceptable risks to human and ecological receptors located in the vicinity of the Pickering nuclear site” but at later points in the document it is acknowledged that worker dose will be significantly higher than in recent operating years, and that dose to the public will also be increased. Another overly general statement indicates that “the construction and operation of the proposed PCSS will have a negligible effect on the safe operation of the PWMF, and the safety of the public and workers” but – as just noted – this is in conflict with the later statements of increased dose for both the workers and the public.

REQUEST: the Commission should direct staff to providing supporting references for both general and categorical statements made in the Commission Member Documents, to allow both the Commission and the reading public to trace the statements to their source in order to assess the credibility of the statements.

¹⁰ CNSC CMD 25-H101, Page 25

¹¹ CNSC CMD 25-H101, Page 11

Timeline

In our review we did not find a clearly set out timeline for the related activities of PWMF license amendment, PCSS design, PCSS construction, application for a PROL amendment, completion of refurbishment design work and planning, and carrying out of refurbishment activities. Such an interrelated timeline would be helpful in assessment the degree to which the current set of CMDs before the Commission are speculative versus substantive. It is our current assessment that they are excessively speculative but it is unclear what motivates that approach.

For example, the CNSC staff CMD states that - should the licence amendment be granted - OPG expects the proposed PCSS to be operational by April 2027.¹² In contrast, recent pronouncements by the Government of Ontario have stated that the Project Definition Phase of the project will last through 2026, and refurbishment would be carried out in the 2030s.¹³ And, as noted an application for an amendment to the PROL has not yet been received (or, more accurately, it not yet publicly known that such an application has been received).

REQUEST: the Commission should require CNSC staff and OPG jointly submit a detailed timeline for refurbishment related activities and milestones, including planning, design, licensing, site preparation, construction and operation stages

Location of the PCSS

The application provides very minimal information about the location of the proposed new waste storage facility. The text description states that “the proposed PCSS will be located adjacent to the northern boundary of the NSS-PWMF Phase II site within the Pickering Site East Complex” and the images are of poor quality. The CNSC staff CMD and OPG’s CMD particularly fail to present the location of the proposed PCSS in relation to the approved but not yet constructed Dry Storage Buildings #5 and #6. Only by returning to the Pickering Waste Management Facility Application for Licence Renewal, OPG, October 2016, were we able to place the PCSS in relationship to DSB #5 and #6.

The poor quality images of site layout is a recurring issue with OPG’s applications and Commission Member Documents, as Northwatch has commented before.

¹² CNSC CMD 25-H101, Page 2

¹³ Government of Ontario News Release, “Ontario Advancing Plan to Refurbish Pickering Nuclear Generating Station”, January 23, 2025, <https://news.ontario.ca/en/release/1005620/ontario-advancing-plan-to-refurbish-pickering-nuclear-generating-station>

Image source: CNSC CMD 25-H101, PAGE 4



Figure 1 - Aerial view of the PWMF

e-Doc 7385795 (Word)
e-Doc 7477343 (PDF)

07 March 2025

Image source: OPG CMD 25-H101.1, PAGE 5

Figure 1: PCSS and NSS-PWMF Layout





Figure 8: Indicative PWMF Expansion Areas

REQUEST: that the Commission direct OPG (and CNSC staff) to improve the resolution and quality of images inserted in their applications and Commission Member Documents to improve readability and provide higher quality depiction of structures and site layouts.

Worker Dose

OPG has indicated that the projected maximum individual effective dose to a worker at the proposed PCSS over the course of emplacement operations is estimated to be 9.60 mSv and CNSC staff comment that “considering the proposed project schedule and comparison with operational experience, the maximum annual individual effective dose is expected to remain below regulatory limits”.¹⁴

In this observation CNSC staff omit to provide an estimate of what time frame is assumed when referring to “over the course of emplacement operations” and making the statement that 9.60 mSV will be “below regulatory limits”.

¹⁴ CNSC CMD 25-H101, Page 18

Both in general and in comparison, 9.60 mSv is a relatively high level of worker exposure, by Northwatch’s assessment. The CNSC staff CMD, in providing that number, did not provide any additional detail or context, but in comparison to the figures provided in Table 1 of the CMD 25-H101 it is 22 times higher than the average effective dose in 2023.

Table 1: Average and maximum individual effective doses of NEWs at the Pickering Waste Management Facility from 2019-2023

	2019	2020	2021	2022	2023	Regulatory Limit
Average Effective Dose*	0.40 mSv	0.60 mSv	0.50 mSv	0.61 mSv	0.43 mSv	-
Maximum Individual Effective Dose	0.90 mSv	1.30 mSv	1.40 mSv	1.18 mSv	1.38 mSv	50 mSv per one-year dosimetry period

* Arithmetic average dose values are based on the non-zero results only.

1Source: CNSC CMD 25-H101, Page 19

Long Term Management of Radioactive Wastes

Ontario Power Generation describes having “initiated provincewide outreach to find solutions for permanent disposal of our LLW. The outreach begins with a learning phase, in which OPG reaches out to Indigenous Nations and Communities across Ontario, followed by municipalities, to begin two-way dialogue on the role of nuclear energy and disposal of LLW” in 2024.

We have carefully reviewed Ontario Power Generation’s web site, including the sections of the web site dedicated to OPG’s “Nuclear Sustainability Services (NSS)” and find no description or even reference to this “provincewide outreach” campaign OPG purportedly carried out in 2024. It also does not appear to have been the subject of any media coverage throughout that period (although media searches generate a large volume of news items on OPG’s failed effort to develop a deep geological repository for low-level radioactive waste beneath the Bruce nuclear generating station). Our assessment is that OPG’s description of their “provincewide outreach” is exaggerated at best. It is also quite possible that a) the description is deceptive, and / or b) the process is secretive. None of these are positive attributes.

It is a matter of frustration to public interest intervenors such as Northwatch to have this kind of material entered into the record with no opportunity to question or test its validity.

REQUEST: the Commission should establish a process wherein interrogatories or information requests can be filed by intervenors as part of the CNSC review process.

As a matter of clarification, OPG writes in their CMD that “for ILW, the ISRW determined that a Deep Geologic Repository (DGR) is appropriate for permanent disposal, and the NWMO will

implement a consent-based siting process for this. The planning process for this work is now underway”¹⁵ but the only planning process that is “underway” is one that is internal to the NWMO.

We note that the document is dated February 18, 2025 and it may have been the legitimate expectation of the authors at that time that a “planning process” for a deep geological repository for intermediate level radioactive waste would be underway by July 2025, as NWMO had been saying for some time – as the time of writing the CMD – that the would be providing the Minister with a “plan” by March 2025.

Whether any report, plan or proposal was in fact provided to the Minister by March 2025 is unknown. What is known is that in their 2024 Annual Report, published in March 2025, NWMO described developing a community-driven siting process over the next five years, while also saying that they expect to finalize that site selection process – developed over the next five years – in the next two years and launch it in three years, with the site selection process itself expected by NWMO to “take several years”.¹⁶

REQUEST: the Commission should establish a process wherein interrogatories or information requests can be filed by intervenors as part of the CNSC review process.

Additional Issues

Requirement for a Public Hearing

In a Notice of Hearing dated November 21, 2023, the Commission advised that it intends to hold a hearing based on written submissions to consider “Ontario Power Generation’s application to change the licensing basis for the Pickering Waste Management Facility.”

It is Northwatch’s position that the Commission is legally required to hold a public hearing in this matter as opposed to a written hearing, for reasons including those set out in this submission.

Under section 40(5) of the *Nuclear Safety and Control Act*, a public hearing is required when the Commission intends to amend a licence. Section 40(5) provides as follows:

(5) The Commission shall, subject to any by-laws made under section 15 and any regulations made under s. 44, hold a public hearing with respect to

(a) the proposed exercise by the Commission [...] of the power under section 24(2) to issue, renew, suspend, amend, revoke or replace a license; and

¹⁵ OPG CMD 25-H101, page 5

¹⁶ NWMO 2024 Annual Report, March 2025, as posted at https://www.nwmo.ca/-/media/Reports-MASTER/Corporate-reports/Annual-and-triennial-reports/NWMO-Annual-report-2024.ashx?rev=fc0163b35b1140d4bec882947c903d89&sc_lang=en

(b) any other matter within its jurisdiction under this Act, if the Commission is satisfied that it would be in the public interest to do so [Emphasis added].

It is clear based on section 40(5)(a), that when amending a licence, a public hearing must be held, subject to any by-laws made under section 15 and any regulation made under section 44.

We have reviewed the relevant by-laws and regulations issued under the *Nuclear Safety and Control Act*. Based on our review, the only relevant document appears to be the Canadian Nuclear Safety Commission's Rules of Procedure, SOR 200-211 (*Rules of Procedure*).

Section 3(1) of the *Rules of Procedure* provides:

[t]he Commission or, where applicable, a designated officer may vary or supplement any of these Rules, in order to ensure that a proceeding be dealt with as informally and expeditiously as the circumstances and the considerations of fairness permit.

However, as the requirement to hold a public hearing is required under the *Nuclear Safety and Control Act*, the power to vary under the *Rules of Procedure* does not allow the Commission to deviate from the requirement to hold a public hearing.

In addition, section 30(2) of the *Rules of Procedure* indicates that after “receiving a notice of appeal or rehearing and redetermination, the Commission shall determine whether its consideration will be by way of public hearing under paragraph 40(5)(b) of the Act or written submissions or by another manner that will enable the Commission to determine the matter before it in a fair, informal and expeditious manner.” However, section 30(2) only deals with an appeal or rehearing and redetermination and is, thus, not applicable in this matter.

Consequently, it is our position that the Commission does not have authority to hold a written hearing in this matter given that OPG's is seeking to amend its license for the Pickering Waste Management Facility. Instead, the Commission is statutorily required by section 40(5)(a) of the *Nuclear Safety and Control Act* to hold a public hearing.

There are also compelling public interest reasons for holding a public hearing in this matter given that OPG's application raises health, safety, and environmental concerns.

In summary, it is Northwatch's position that the Commission is required to hold a public hearing in this matter under section 40(5)(a) of the *Nuclear Safety and Control Act*, given that OPG's is seeking to amend its license for the Pickering Waste Management Facility.

REQUEST: that the Commission clarify on what legal basis the Commission has decided not to hold a public hearing.

REQUEST: The Commission convene a public hearing with at least 90 days' notice after additional information has been provided by OPG; the public hearing would most effectively be held to consider the application to amend the licence for the Pickering Waste Management Facility to accommodate refurbishment waste and the application to refurbish Pickering “B” units 5-8.

Conclusions

Ontario Power Generation has failed to adequately support their license amendment application. As outlined above, the Commission has inadequate information to make the decision before them, and the application and CNSC staff's supporting recommendations provide the Commission with an overly reduced decision-making role.

CNSC staff concluded that OPG has demonstrated that the design considerations for the construction of the proposed PCSS meet the regulatory requirements, adequately assessed the hazards associated with the proposed activities through safety assessments and has demonstrated an adequate level of protection of workers, the public, and the environment, and that OPG remains qualified to carry on the activities authorized in the WFOL and continues to make adequate provisions for the protection of workers, people and the environment.¹⁷

Northwatch disagrees with those staff conclusions and with the staff recommendations that the amendment be approved, for reasons set out in this submission.

REQUEST: the Commission should reject the application to amend the PWMF license at this time.

Thank you for your consideration. We look forward to a positive outcome of the Commission's review.

Sincerely,



Brennain Lloyd
Northwatch Project Coordinator

¹⁷ CNSC CMD 25-H101, Page 2