

PNGS Community Advisory Council
Pickering Nuclear Information Centre
Tuesday, April 15, 2025
Highlights

Site Update

Arnold Manuepillai talked about: the operating status of Units 5, 6, 7, and 8; the de-fueling and de-watering of Units 1 and 4 (which had ceased operations by the end of 2024); operating licence renewal applications for Pickering Nuclear and the Pickering Waste Management Facility; and planning for the refurbishment of Units 5 – 8.

NWMO Project Update

Joe Gaboury presented an update on the Nuclear Waste Management Organization's site selection process for a deep geological repository (DGR) for the storage of used nuclear fuel in Canada. In 2024, the process led to the selection of Wabigoon Lake Ojibway Nation (WLON) and the Township of Ignace as the DGR site. Joe also talked about a site selection process for a DGR to store intermediate-level and non-fuel high-level waste. He emphasized the importance of informed consent from host communities.

Nuclear Sustainability – Waste Management and Decommissioning Strategies

Heather Rambukkana talked about Nuclear Sustainability Services and its management of waste from Ontario's 20 CANDU reactors. She described in detail how NSS minimizes and stores nuclear wastes and plans for their permanent disposal. John Vanderheyden talked about the decommissioning of Pickering Units 1 to 4, and Frank Scarcelli talked about OPG's long-term decommissioning strategy.

Public/Community Affairs

Analiese St. Aubin presented an update of OPG involvement in community activities. Among the items mentioned; the Bring Back the Salmon program, which engages elementary schools; a Take Pride in Pickering tree planting event; Bowl for Kids' Sake; Steps for Life in support of families after workplace fatalities or injuries.

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Pickering Nuclear Information Centre
Tuesday, April 15, 2025**

CAC:

Craig Bamford
Frank Dempsey
Nicholas (Nick) Fontana
Bill Houston
Tim Kellar
Pat Mattson
Tavis Nimmo
Dan Shire
Nick West
David-Angelo Williams

Regrets:

Pam Collins
Tracy MacCharles
Sean McCullough
Peter Ottensmeyer
Eric (Zhen) Qin
John Simpson

NWMO:

Joe Gaboury

OPG:

Arnold Manuelpillai
Heather Rambukkana
Frank Scarcelli
Analiese St. Aubin
John Vanderheyden

Hardy Stevenson and Associates:

Francis Gillis
Dave Hardy

Topic #1: Health and Safety Moment

Following a Land Acknowledgment, Arnold Manuelpillai, Director Work Management, remarked that springtime is an opportunity to refresh the focus on safety, at home and on the job. Melting snow and mud call for proper footwear. It's also a good time to check spring and summer equipment, including ladders. Spring allergens can impact your concentration and breathing. Stay hydrated and don't push through if you're not feeling well.

Topic #2: Review of Minutes

CAC Facilitator Dave Hardy noted that we maintain a list of pending actions, which currently includes:

- Invite Canadian Nuclear Safety Commission (CNSC) representative to a Council meeting
- Invite Nicolle Butcher, the new President and CEO of OPG, to a Council meeting

Regarding the January minutes, a Council member asked a question about the bullet at the top of page 4:

- We will be adding a new entrance to the plant and sally port at the west side of the property, Sandy Beach/Montgomery Park, in the fall.

It was clarified that the plant entrance and sally port are one and the same thing. A sally port is a secure, controlled entryway to an enclosure.

With this clarification, the CAC minutes for January 21, 2025 were approved.

Topic #3: Site Update

Arnold Manuelpillai, Director Work Management, presented a site update:

- Units 6, 7, and 8 are operating at or near full power.
- In early April, Unit 5 was brought offline for an unplanned maintenance outage due to a build-up of gases on the unit's main output transformer. The issue has now been resolved, and Unit 5 is expected to return to service in early May.
- Unit 1 is expected to be completely defueled by the end of May.
- At Unit 4, OPG has successfully defueled 212 out of 390 channels.
- OPG is now preparing for the dewatering of Unit 1.

- OPG is requesting a renewal of the Pickering Nuclear operating licence for a 10-year term. OPG is linking this request with an application to renew the Pickering Waste Management Facility operating licence for 10 years. A decision is expected by the end of 2026.
- A lot of detailed planning for the refurbishment of Units 5 – 8 is underway, including barges that will return to the lake to complete geotechnical assessments (see details on barges in the Neighbours Newsletter). Updating infrastructure and other on-shore work may be seen on the west side of the property. In preparation for refurbishment, OPG has signed a \$2.1 billion contract covering work preparation and infrastructure, which will support more than 2,400 jobs.
- The CNSC recently granted OPG a Licence to Construct a small modular reactor (SMR) at the Darlington site. OPG plans to ultimately construct a total of four SMRs on the site and to establish a Canadian supply chain for the global market.

Arnold responded to a Council question:

- *With the planned refurbishment, is the approach to algae control at Pickering going to change?*
No, our actions are not going to change. Algae season now seems to be becoming a year-round phenomenon.

Topic #4: NWMO Project Update

Joe Gaboury, Director Indigenous Engagement at NWMO, presented an update on the site selection process for a deep geological repository (DGR) for the storage of used nuclear fuel in Canada (Appendix 1).

Joe talked about the Nuclear Waste Management Organization's approach to the long-term management of used nuclear fuel in Canada. He presented the time-line of the project:

- Site selection – to 2024
- Regulatory decision-making process: 2025 – 2033
- Design and construction: 2033 – 2043

He reviewed the process used to select Canada's plan, which resulted in the Adaptive Phased Management (APM) approach, accepted by the Government of Canada in 2007.

Joe talked about the Reconciliation Journey, through which the NWMO engages respectfully with Indigenous communities.

He described the NWMO's site selection process for Canada's used fuel DGR project. He emphasized the importance of informed community consent to being sited for the

DGR. In 2010, 22 communities volunteered to participate in the process. In 2024, Wabigoon Lake Ojibway Nation (WLON) and the Township of Ignace were selected. The NWMO may now proceed to detailed site characterization and licensing.

Joe described the site selection as “a milestone for the nuclear industry.”

He presented a chart showing the project phases and planning timelines (for details see Appendix 1, slide 9):

- Site preparation and construction: 2030 – 2042
- Operations: 2043 – 2092
- Decommissioning and closure: 2093 – 2192

Joe stated that the fuel in the DGR will be retrievable. He noted that, in Finland, they refer to their DGR as a “temporary” location for fuel.

Intermediate-Level and Non-Fuel High-Level Waste

In Fall 2020, the Government of Canada asked the NWMO to develop an integrated strategy for radioactive waste (ISRW), which the Organization did in consultation with the public and Indigenous communities. In October 2023, the Minister of Natural Resources Canada accepted the ISRW and NWMO recommendations:

Recommendation 1: Intermediate-level waste and non-fuel high-level waste to be disposed of in a deep geological repository with implementation by the NWMO.

Recommendation 2: Low-level waste to be disposed of in multiple near-surface disposal facilities with implementation by waste generators (e.g. OPG)

Joe noted that, in implementing these recommendations, the NWMO will be enhancing its Indigenous engagement. The NWMO has found that the biggest Indigenous issue is mistrust of government and the nuclear industry.

Joe, and Heather Rambukkana, responded to Council questions:

- *Will the dry storage containers eventually be shipped to the DGR?*
Joe: The DSCs will not be shipped; the fuel will be removed from the containers.
- *Will the emptied DSCs be considered nuclear waste.*
Heather: The emptied DSCs will be disassembled. They will not be designated as nuclear waste.
- *Does Finland have as much used nuclear fuel as Canada?*
Joe: Finland is dealing with less used fuel than the NWMO is planning for, but they are anticipating growth in nuclear power in that country.
- *Are there opportunities for recycling used fuel instead of storing it?*

Joe: At the end of the day, we will still need a repository, even with some recycling of used fuel.

- *Regarding the deep geological repository for intermediate-level waste that you talked about, where will this end up?*

Joe: A proposed site selection process is now being drafted. Some of the communities we engaged with for the used fuel depository may be interested in an intermediate-level and non-fuel high-level waste DGR.

Topic #5: Nuclear Sustainability – Waste Management and Decommissioning Strategies

Heather Rambukkana, Director Eastern Operations & Maintenance, talked about Nuclear Sustainability Services (NSS) and its management of the waste from Ontario's 20 CANDU reactors (Appendix 2).

Heather noted that all the waste under NSS care falls into three categories of action: preventing creation of waste in the first place; managing the small percentage of waste that must be disposed of for the long term; and harnessing waste and byproducts to make nuclear power useful beyond just generation (e.g., extracting isotopes from waste).

Regarding harnessing waste, Heather remarked that "it's not waste until it's wasted."

She noted that Nuclear Sustainability Services (NSS) cares for waste from Ontario's 20 nuclear reactors in three waste management facilities:

- Western Waste Management Facility: low- and intermediate-level waste from all stations; Bruce Power used fuel
- Darlington Waste Management Facility: Darlington used fuel; intermediate-level waste from refurbishment
- Pickering Waste Management Facility: Pickering used fuel; intermediate-level waste from Pickering re-tube; will also handle waste from refurbishment of Units 5 – 8

She described in detail how Nuclear Sustainability Services minimizes and stores nuclear wastes, and plans for their permanent disposal. Like the NWMO, NSS consults with the public and Indigenous communities, and recognizes the importance of informing them.

Recently, testing showed that NSS can remove used fuel bundles from wet bays after six years (as opposed to the previously standard practice of wet storage for 10 years) and transport them to dry storage containers (DSCs). OPG has received written approval from the CNSC to proceed with processing and storing at the PWMF a maximum of 100 DSCs (at a time) containing a minimum of six-year used fuel.

Heather talked about how NSS meets high standards of nuclear safety and radiation protection. NSS ensures that collective doses are as low as reasonably achievable (ALARA).

She presented details from Pickering Waste Management Facility operations in 2024: Used fuel from Pickering Nuclear continued to be removed from the station and stored safely and on time.

- Pickering loaded 80 dry storage containers (DSCs), reaching the NSS 2024 target.
- Pickering's current 10-year operating licence expires in 2028.
- Performance reports for all three waste management facilities are available on opg.com.

Looking to the future, Heather talked about the need for additional storage space for used fuel (Storage Building 5). This will be the final used fuel storage building required at Pickering, given the NWMO's planned DGR in-service date of mid-2040s.

To support the refurbishment of Pickering Units 5 – 8, additional on-site interim storage space is required for removed low- and intermediate-level reactor components.

Heather responded to Council questions:

- *Do you keep a record of all wastes stored?*
Yes, we need to know what every piece of waste is. We keep electronic records. With used fuel, we record what reactor channels it is from.
- *How does OPG ensure it will have enough funds to cover waste management of used fuel and of defurbishment materials?*
We have \$20 billion in a Used Fuel Segregated Fund and a Decommissioning Segregated Fund. Every five years we review the funds to ensure they are still sufficient.
- *Who reports on this review?*
OPG reports through the Government of Ontario. In conjunction with the Ontario Financing Authority, OPG manages the investment activities of the segregated funds.
- *Does OPG liaise with the Cameco uranium conversion facility in Port Hope?*
Yes, we do benchmarking and communication with Cameco. The nuclear industry is a very tight network.

Decommissioning Units 1 to 4

John Vanderheyden, Senior Manager Pickering Waste Management Facility, talked about the decommissioning of Pickering Units 1 to 4. Nuclear Sustainability Services (NSS) is removing all fuel from these four units. Units 2 and 3 have been in safe storage since the early 2000s. Unit 1 was retired in October 2024 and Unit 4 in December 2024.

NSS will also be removing fuel from Units 5 to 8 in preparation for refurbishment.

Last year PWMF loaded 80 dry storage containers, and will continue to load 80 DSCs each year until 2035. From 2035 to the end of operations, 35 DSCs will be loaded every year.

As mentioned, we have an agreement with the CNSC to load a minimal amount of fuel bundles from wet storage after six years. Construction of Storage Building 5 will cover all additional requirements before transport to a deep geological repository (DGR).

Heather and John are looking at the issue of removing fuel from DSCs; there will be a number of studies on this issue.

Heather noted that OPG has to ensure that stored fuel is retrievable and intact.

John and Heather responded to Council questions:

- *What is the difference in temperature and radiation levels between fuel bundles stored in wet bays for six versus 10 years?*

John: The radiation levels are five to seven millirems after six years of wet storage and three millirems after 10 years.

- *And the temperature differences?*

Heather: Studies have shown that temperature of bundles in wet storage after six years is one to two degrees celcius higher than it would be for 10 years.

- *What are the temperature factors?*

John: Factors include whether bundles were near or far from the reactor core, and the age of the bundles. The resulting temperature differences are minimal.

Pickering Units 1 – 4 Decommissioning Strategy

Frank Scarcelli, Senior Manager Projects, Decommissioning, presented a Pickering 1 – 4 decommissioning overview:

- from stabilization;
- to long-term storage with surveillance;
- to dismantlement and site restoration.

Frank noted that we are currently in the Stabilization stage, placing units in a safe storage state until their removal. This involves draining and isolating systems, removing hazardous materials, and implementing advanced security measures. Units 2 and 3 are already in safe storage. By the end of 2028, Units 1 and 4 will also be in a safe storage state.

A Detailed Commissioning Plan is updated every four or five years.

During the long-term Storage with Surveillance phase, risk reduction activities—particularly in the non-nuclear, conventional waste areas—are aimed at removing any liabilities before full dismantling.

Dismantling of non-nuclear components begins in 2036, followed by dismantling of nuclear components, structures and reactors (2040 – 2060).

Frank indicated that OPG does not wish to over plan beyond 2060; they are trying to keep flexibility.

Frank responded to Council questions:

- *Are there any opportunities for re-using the used fuel?*
Current plans are not focusing much on re-using materials. There is, however, a lot of value in electronic components.
- *Can any of these materials go to landfill?*
We could partner with landfill companies regarding conventional waste.
- *You mentioned that the current stabilization stage includes implementation of “enhanced security.” What does this entail?*
This includes reviewing security processes we already have in place.
- *Are some components from Units 1 to 4 valuable? Could they be re-used?*
We may be able to scavage some materials from the four units. Control room components are likely to be outmoded.
- *Are you in communication with other countries involved in used fuel waste management?*
Yes, we’ve done benchmarking with other countries, particularly with Finland, who are constructing the world’s first deep geological repository. We are also in communication with DGR-related vendors. As well, we have visited decommission sites, including the Gentilly-2 site nearTrois-Rivières in Quebec and the Douglas Point prototype reactor near Kincardine. These sites will be decommissioning before we are.

Heather noted that NSS has built a case study for decommissioning based on cost information and experiences of other sites.

Topic #6: Public/Community Affairs

Analièse St. Aubin, Senior Manager Stakeholder Relations, Corporate Affairs, presented an update on OPG involvement in community activities:

- For March break, OPG and community partners provided a full range of educational and fun programs on and off site.
- Grade 3 students from Duffins Bay Elementary School in Ajax joined OPG, the Ontario Federation of Anglers and Hunters (OFAH), and Toronto and Region Conservation Authority (TRCA) to participate in the educational Bring Back the Salmon program.
- On May 8th OPG will visit the classroom for a presentation. And June 4th is the final tier of the program, which is the release of the salmon at Claremont Conversation Area.

Recent Community Events

- At the Everything Maple Syrup Event, OPG partnered with TRCA to conduct an environmental stewardship education event at the Pickering Central Library and George Ashe Library.
- OPG hosted the Pickering, Ajax and Port Perry Probus clubs in February and March at the Pickering Nuclear Information Centre. More than 160 people attended.

Upcoming Events

- On April 28th students will participate in a litter clean-up at Brockridge Community Park in Pickering.
- Pickering Nuclear looks forward to hosting up to 80 local real estate agents for an information session at the end of the month.
- OPG, in partnership with the City of Pickering and TRCA, will conduct a Take Pride in Pickering tree planting event at Alex Robertson Park on April 26th.
- On April 30th OPG members will attend the Bowl for Kids' Sake event supporting the Big Brothers Big Sisters of South-West Durham.
- On Sunday, May 4th OPG will once again host the annual Threads of Life, Steps for Life Walk at the Pickering Nuclear Information Centre. Threads of Life supports families after a workplace fatality, life-altering injury or occupational disease.
- Plans are underway for the summer Tuesdays on the Trail program.

Darlington Licencing Update

- OPG is applying to renew the Darlington operating licence for a 30-year term. OPG presented and participated in Part 1 of a CNSC hearing on the application. Part 2 of the hearing will take place in June. In advance of these hearings, the Darlington team has hosted public information sessions and workshops, with more planned in May and June.

Joe asked for an update on OPG's corporate office move to the General Motors of Canada building in Oshawa. Analiese said the move hasn't happened yet. Heather noted that the move will start at the end of August.

Topic #7: Concluding Comments

Dave noted that, at their meeting next Tuesday, Darlington CAC members will be discussing intervening in the Darlington licence renewal hearing.

Dave announced that the CAC meeting of June 17th will be the last Council meeting that he and Francis Gillis will be involved in.

Arnold thanked CAC members for their engagement with OPG. He remarked that OPG values its social licence and appreciates the contribution the Council makes to OPG's earning that licence.

Next Meeting

Pickering Nuclear Information Centre
Tuesday, June 17, 2025
4 pm – 7 pm