DURHAM NUCLEAR HEALTH COMMITTEE (DNHC)
MINUTES

Location
Virtual

Date & Time
April 25, 2025 at 1:00 PM

A regular meeting of the Durham Nuclear Health Committee was held on Friday, April 25, 2025 at 1:00 PM via Microsoft Teams.

Comments and questions from members of the public observing the meeting can be emailed to dnhc@durham.ca.

Attendance

Members
Dr. Robert Kyle, Durham Region Health Department (DRHD) (Chair)
Anthony DiPietro, DRHD
Raphael McCalla, Ontario Power Generation (OPG)
Loc Nguyen, OPG
Deborah Kryhul, Public Member
Veena Lalman, Public Member
Dr. Lubna Nazneen, Public Member
Susan Ebata, Public Member
Jane Snyder, Public Member
Alan Shaddick, Alternate Public Member
Bill Rattan, Alternate Public Member

Presenters & Staff
Dianne San Juan, DRHD (Secretary)
Helen Tanevski, DRHD
Roger Inacio, Region of Durham, IT- Service Delivery
Andrew Parmenter, Nuclear Waste Management Organization (NWMO)
Heather Rambukkana, OPG
Dr. Kirk Atkinson, Ontario Tech University (OTU)
Lindsay Hamilton, OPG

Regrets

Caitlyn Paget, DRHD
David Keene, Ministry of the Environment, Conservation and Parks (MECP)
Philip Dunn, MECP
Hardev Bains, Public Member
Dr. Seewoosunkur Gopaul, Public Member
Madisen Wood, Youth Public Member

Madison Kidd, Youth Public Member

Dr. Robert Kyle opened the virtual meeting and welcomed everyone.

Land Acknowledgement by Dr. Kyle.

Dr. Kyle mentioned that observers who have questions concerning presentations should email or discuss their requests with Dianne San Juan, DNHC Secretary, at dnhc@durham.ca.

Dianne will follow-up with each of the presenters after the meeting with the observers' questions. Dianne will report back to Dr. Kyle the outcomes of the questions received.

1. Approval of Agenda

The Agenda was adopted.

2. Approval of Minutes

The Minutes of the February 7, 2025 meeting were adopted as written.

3. Correspondence

3.1 Darlington Nuclear Generating Station (DNGS) and Pickering Nuclear Generating Station (PNGS) Community Advisory Council (CAC)

Agenda and minutes from the joint PNGS/DNGS CAC meeting of December 3, 2024 were emailed to DNHC members on March 10, 2025.

3.2 Update on the Darlington New Nuclear Project (DNNP)

The updates were emailed to DNHC members on March 3, 2025. Updates included January's Licence to Construct (LTC) regulatory hearing, recent site progress and a look back at the important progress made in the last 12 months.
For questions about the project, contact the project phone line (1-800-461-0034), email or by having a conversation at our public information centre (1855 Energy Drive, Courtice, open Monday-Friday 9 a.m. – 3:30 p.m.).

3.3 Whitby resident inquiry regarding OPG application to amend the Pickering Waste Management Facility (WMF) Operating Licence to construct and operate the Pickering Component Storage Structure (CSS)

Resident is requesting OPG provide a plain language explanation of this project, the anticipated doses, the shielding system, the anticipated lifespan of the structure, how long "interim" storage is in years and exactly where this material is expected to end

up for final disposal. This inquiry was forwarded to OPG for a response.
OPG has directed the resident to their presentation for the April 19, 2024 DNHC meeting, which starts on pg 24. There is also additional information provided in the video recording of the meeting and on opg.com and the Canadian Nuclear Safety Commission CNSC website.
Additional content on the Pickering WMF licence amendment will be included in their presentation for this meeting.

3.4 Nuclear Waste Management Organization (NWMO) 2024 Annual Report and 2025-29 Implementation Plan

2024 Annual Report available at NWMO-Annual-report-2024.ashx.

2025-29 Implementation Plan available at Implementation-plan-2025-29.ashx.

Share your thoughts on the Implementation Plan by completing their survey by June 6, 2025.

3.5 Committee member follow-up questions and comments received after the February 7, 2025 meeting

- Regarding the KI tablet presentation, a suggestion was received to promote the information on our local Roger's TV station DRPS segment; this suggestion was forwarded to Paulo Correia, Manager, Health Protection, DRHD. It was received with thanks and will be considered for a future campaign.
- Regarding the Durham Emergency Management (DEM) nuclear emergency preparedness program presentation, 2 questions were received: Do they have an RTO (Recovery Time Objective) for the recovery process during offsite centre testing? Are the OPG emergency management plans and processes aligned with DEM plans? Mary LaChapelle, Acting Deputy Director, DEM, responded "During the offsite testing, the recovery time objective will be based on the direction received from the Provincial Emergency Operations Center/Province. All stakeholders prepare, plan, respond and exercise in a coordinated effort aligning our plans and processes."

4. Presentations

All meeting presentations will be made available on the Council and Committee Meetings Calendar. PDF files for each presentation can be accessed using the agenda HTML link and a video recording of the meeting can be viewed using the webstreaming link that will be provided approximately two weeks after this meeting date.

4.1 Canada's Plan for the Management of Used Nuclear Fuel: Confidence in Safety

Presented by Andrew Parmenter, Director, Geoscience, NWMO

Highlights of the presentation

- Overview of the NWMO
- November 2024: NWMO selected a site for the Canada's used nuclear fuel, in the Wabigoon Lake Ojibway Nation, the Township of Ignace
- Safety elements at the Revell Site (southeast of the Wabigoon Lake Ojibway Nation and northwest of the Township of Ignace) discussed, including the geologic setting, suitability of the barrier system, ability to transport fuel to site, etc.
- Favourable Setting: the rock is old and stable; experience operating an underground lab in a similar setting; relatively low seismic activity
- Stations installed to record seismic information to ensure assumptions remain valid
- Low natural resources potential; no mineral claims in site
- Engineering components of multiple barrier system discussed
- Engineering proof testing discussed
- Used nuclear fuel transportation discussed; will begin in the 2040s when the repository is operational
- Transportation Framework document released in 2021; will continue to undergo review and public reporting
- Radiation dose rates discussed; dose expectation will be similar to living near a nuclear site such as Bruce Power
- Lessons learned from partner organizations discussed; sites in Finland and Sweden have been recognized for their suitability for hosting used fuel repositories in crystal and rock similar to what we have at our site
- Estimates of timelines: Centre of Expertise to be built at or near the repository site, opening in 2028; expect to break ground in 2030s and beginning operations in 2040s; multigeneration infrastructure project
- Integrated strategy for radioactive waste (low, intermediate, and high-level waste) discussed
- More information and reports are available at https://www.nwmo.ca/A-safe-approach

Questions

Dr. Kirk Atkinson: It was stated that the repository will be closed in the 2090s. What are the assumptions for this - what happens if nuclear generating stations are still online then?

Andrew Parmenter: The NWMO is required to manage and store ALL of Canada's used nuclear fuel, even from new and emerging technologies and will be adaptive as things happen in the future; plans and timelines could change.

Dr. Robert Kyle: Is the preferred site deemed to be Crown land? If so, is it provincial Crown land and will it need to be transferred to NWMO? What is the status of the land that is the preferred site?

Andrew Parmenter: It is federal Crown land, but it is also traditional Indigenous territory. There is a lot of work taking place to explore this question, and a more detailed answer will be provided to the Committee.

Correction: The following information was received from the NWMO on May 28, 2025 regarding this question:

The Nuclear Waste Management Organization further notes that the land in question is provincial Crown land that has been withdrawn from mineral exploration and development. The NWMO is working with the Ministry of Natural Resources and Forestry (MNRF) to formally acquire the land for the Adaptive Phased Management project and will provide an update on its status at a future presentation to DNHC

4.2 Progress Report by OPG's Nuclear Sustainability Services Division concerning its handling and management of radioactive materials and waste

Presented by Heather Rambukkana, Director Operations and Maintenance – Nuclear

Sustainability Services Eastern, OPG

Highlights of the presentation

- Provided an overview of nuclear sustainability services and what they do
- Primary focus of waste management: preventing the generation of low-level waste materials, managing the long-term safety of spent fuel and harnessing the waste discussed
- Harvesting radioactive isotopes from reactors such as cobalt 60 and molybdenum 99, powering quantum computing, and medical tracer technology provided as examples of giving waste new life
- 3 waste management facilities (WMFs): Western WMF (licensed to 2027), Darlington WMF (licensed to 2033), and Pickering WMF (licensed to 2028; a letter has been sent to the regulator to seek an early renewal for this licence and have it consolidated with the existing Pickering power reactor operating licence)
- 2023 Integrated Strategy for Radioactive Waste report; educational campaign available
- Low, intermediate and high-level waste management and disposal discussed
- Low-level waste disposal solution is with the waste generators; OPG is implementing a near surface disposal facility for low-level waste; planning and consultations are underway
- Intermediate-level waste stored in in-ground storage containers at the Western WMF
- Used fuel/high-level waste cooled underwater, and after a period of cooling, it goes into specialized dry storage containers and final disposal is with the NWMO
- Pickering WMF – 80 dry storage containers (DSCs) loaded and transferred in 2024; under current licence, are able to build up to 2 more used fuel storage buildings on the site (for a total of 6 storage buildings); able to accommodate used fuel until a deep geological repository (DGR) is in place
- Darlington WMF – 57 DSCs loaded and transferred in 2024
- Safety analysis verifies public and worker dose is within CNSC regulatory limits, even under accident conditions such as fire or extreme weather events; strive to keep doses as low as reasonably achievable

- CNSC recently approved loading of 6-year cooled fuel into DSCs at the Pickering WMF; will support the refurbishment of Pickering units 5-8, as they look to defuel those units for refurbishment
- Storage building 5 at Pickering WMF is required to accommodate the interim storage of used fuel until the DGR is available (will be available for service by 2027)
- Pickering component storage structure (CSS): to support refurbishment of Pickering units 5-8 by providing additional interim storage for reactor components and low-level waste; letter of intent to construct this building submitted to CNSC in February 2024; a licence amendment was needed for this and was completed in May 2024; expecting a CNSC hearing in July 2025 for this building; intervention deadline is May 6, 2025; if approved, this building will have an April 2027 service date
- Dose to the public from the Pickering CSS complies with derived release limits under the Pickering nuclear generating station (NGS), which is defined by a CSA standard and remains below CNSC regulatory limits
- Decommissioning Pickering NGS units 1-4 discussed; by 2028 all 4 units will be in "storage with surveillance"; detailed decommissioning plan for Pickering NGS was submitted to the CNSC in Dec 2024
- Decommissioning strategy currently under review by the CNSC and Indigenous Rights Holders; detailed decommissioning plan (DDP) is updated every 5 years at minimum; decommissioning timelines discussed
- Radioactive isotopes production and use discussed
- For more information and access to reports, please go to opg.com

Questions

Dr. Kirk Atkinson: It was stated that storage building 5 will be the last such building as the DGR should then be ready. I assume this means that OPG will empty buildings 1-5 in sequence, but what happens if the DGR is delayed?

Heather Rambukkana: There is some buffer in storage building 5, there is additional storage room in that building. OPG has full confidence in NWMO's process and it's ability to execute its statutory responsibility to design and implement Canada's plan for the long-term management of this used fuel and is on track to be completed by the mid-2040s. If there was an unlikely situation that would significantly delay this, OPG would seek required regulatory approvals to continue to safely manage and store used fuel on site on an interim basis until a permanent solution is implemented.

Andrew Parmenter: NWMO will be adaptive but have confidence in the site and that this will move forward.

Susan Ebata: What is the volume of low-level waste compared to used fuel? How much is generated per year and how much has to be stored? Has a site been picked for the storage of low-level waste?

Heather Rambukkana: Any of the waste generated is fairly dense and is compacted. We have a storage building with intermediate-level waste at the Darlington site and we have a storage

building with low energy level waste at the Pickering site. Majority of low-level waste is situated at our Western WMF, with the exception of steam generators being stored at the Pickering site. The number of storage buildings we have for low-level waste compared to used fuel at the Western site is actually fairly similar. When you factor in the storage of the high-level waste at Pickering and Darlington, the volume of low-level waste is actually smaller because we have the ability to reduce the volume (60% volume reduction with low-level waste). So in comparison to high-level waste, low-level waste has a smaller volume.
If you were to store all the high-level waste that has been generated in Canada (beyond OPG's operations), it would fill 9 hockey rinks.
Majority of the waste generated is low-level waste, and it undergoes a volume reduction. Each year OPG looks for ways to shrink the footprint of low-level waste.

A site has not been selected for a near-surface disposal facility for low-level waste. Based on feedback from Indigenous nations, before OPG starts the process of siting a potential near-surface disposal facility, information about this waste is being made publicly available so potential host communities are making informed decisions.

Andrew Parmenter: 6 hockey rinks filled to the top of the boards, stacked one on top of each other, is the volume of high-level waste (used fuel).

Dr. Kyle: With regard to intermediate-level waste, what is the volume compared to used nuclear fuel? Does the integrated strategy include legacy intermediate-level waste? Is there a storage medium that is already invented that is suitable for transport of intermediate-level waste to the DGR (assuming that this media will be placed directly into the DGR rather than just the waste itself)? Will the intermediate-level waste stored at the NGSs be transported to the DGR?

Heather Rambukkana: There is a conceptual plan for how the high-level waste will be transported to a DGR; in terms of intermediate-level waste, they will be packaged and transported according to Transport Canada and CNSC requirements. There are transportation packages that exist today that can transport intermediate-level waste. OPG is working with the NWMO on the transportation plans for intermediate-level waste to the DGR. A conceptual plan for how this material would be potentially moved has not been developed.
There is currently intermediate-level waste already in specialized containers that could potentially make their way to the DGR. OPG is working with the NWMO to make decisions on the existing package or any new packages that need to be developed to accommodate all the intermediate-level waste forms.

Dr. Kyle: For the intermediate-level waste currently stored at the nuclear generating stations, will this be transferred to the DGR? Or would it only be new waste at the time the DGR is commissioned?

Heather Rambukkana: It will take both, what's in existing storage, as well as any new waste forms that are generated.

Andrew Parmenter: The mandate of managing intermediate-level waste was given to the NWMO; all legacy and future intermediate-level waste is part of NWMO's plan.

4.3 Update from Ontario Tech University (OTU), Nuclear Engineering program

Presented by Dr. Kirk Atkinson, Director, Centre for Small Modular Reactors, Associate Professor & Industrial Research Chair, Department of Energy & Nuclear Engineering, Faculty of Engineering & Applied Science, OTU

Highlights of the presentation

- Challenges facing the university to address the dual threats of climate change and energy security discussed
- What does the OTU have to do to be able to address the need for a larger and suitably qualified and experienced nuclear energy workforce?
- OTU prepares students and industry professionals across the spectrum to work in the nuclear sector, build new nuclear systems, and be able to operate them safely
- Range of programs offered discussed
- Challenges with enrollment and funding for higher education discussed
- 1/3 of enrollment is female in nuclear engineering
- OTU is in the top 3 largest provider of nuclear engineering undergraduates in North America
- New* - Nuclear Career Accelerator program; 12-week hybrid program for mid-career professionals; micro-credentials towards Ontario Tech certificate, components include understanding the regulatory framework and project management
- Tuition is subsidized by federal government; for more information: ontariotechu.ca/nca
- Research and development at OTU discussed
- Subcritical assembly project discussed – a type of reactor on campus that will not be able to undergo a self-sustaining fission chain reaction (so it cannot have a runaway event and is safe)
- Students able to do experiments and support new nuclear research under this project
- This is considered a class 1A facility; CNSC licensing process for class 1A operating licence discussed
- OTU already holds 2 CNSC licences and operates a radiation safety program subject to regular CNSC and IAEA inspections to ensure compliance; all inspections have been passed
- Project Arrow for Nuclear – a design exercise with George Brown College, resulting in a nanoreactor concept launched at the G4SR-5 Conference in October 2024 called the Canadian Uranium Energy Bridge; explores electricity generation for communities

Questions

Dr. Kyle: There was a recent news release for funding for new STEM student seats in universities and colleges. Will OTU benefit from this funding?

Dr. Atkinson: All Ontario universities will benefit from this, and science, health, and engineering faculties at OTU will benefit from this. With the changing economic climate, many colleges have had to close programs, while OTU is in a very fiscally secure position. There are some

challenges facing the university sector, so this money is in part to protect the sector in the critical need areas and hopefully help bolster the industry as a whole in Ontario.

Dr. Kyle: Are investments into small modular reactors (SMRs) and nuclear energy seen as part of Canada's plan for combatting climate change and reducing greenhouse gases? Are you seeing an increase in funding in the nuclear sector from a research perspective, as part of the climate action philosophy? Any comments regarding federal investments in nuclear energy?

Dr. Atkinson: There is recognition of energy's impact to climate and the importance of energy security. The funding for research in the nuclear space has gotten better, and is probably as good as it's ever been in the post-secondary sector. The challenge is that there is so many things we want to do, and nuclear facilities and support activities are not always there now (it takes time to develop). Another challenge is workforce, most of the funding is for development of people, and it has been a challenge to find people to do the research work with universities.

5. Communications

5.1 Community Updates at Pickering Nuclear and Darlington Nuclear

Lindsay Hamilton, Senior Manager, Corporate Relations and Projects, Corporate Affairs, OPG, provided community updates for Pickering and Darlington NGS:

- Community engagement activities discussed such as the various March Break events
- Neighbors Newsletter distributed in March across homes and businesses in Durham Region
- Darlington NGS update: OPG presented and participated in part 1 of the CNSC hearing on their power reactor operating licence application renewal; part 2 of the hearing will be on June 24-26th at the Chestnut Hill Recreation Complex in Pickering; members of the public may submit interventions by the May 8th deadline; public information sessions and workshops are planned in May and June and will be advertised on social media and on the OPG website

6. Other Business

1) Dates for the remaining 2025 DNHC meetings are as follows:

- June 20, 2025, 1:00 pm
- September 26, 2025, 1:00 pm
- November 28, 2025, 1:00 pm

Meetings will continue to be held virtually via the TEAMS platform and available for the general public to observe via livestream at www.durham.video.

2) The revised DNHC Terms of Reference has been posted on our webpage, durham.ca/DNHC

3) Reminders:

- All meeting presentations will be made available on the Regional Council and Committee Meetings Calendar. This can be navigated to via the “DNHC meetings, agendas, presentations and minutes” tab on our webpage durham.ca/dnhc. A video recording of meetings can also be viewed using the webstreaming link in the Regional calendar. The presentation files for this meeting will be made available approximately three weeks after this meeting.

7. Next Meeting

Date & Time
June 20, 2025 at 1:00 PM
Virtual via Teams

8. Adjournment

2:58 PM