

**PNGS Community Advisory Council
Pickering Nuclear Information Centre
Tuesday, September 19, 2023
Highlights**

Site Update

Jon Franke talked about: the operating status of the Pickering Nuclear units; proposals to extend the life of Units 5, 6, 7, and 8 to the end of 2026; a forthcoming decision by the Government of Ontario about refurbishing Units 5 – 8; and other matters. The CAC indicated they wish to intervene in a CNSC public hearing in June 2024 regarding an OPG application to extend the life of Units 5 – 8 to the end of 2026.

Action Levels for Reporting Environmental Releases

Ali Esmaeily talked about levels of environmental releases from Pickering and Darlington that trigger action by OPG and reporting to the CNSC. These “action levels” are far below regulatory release limits. The CNSC has called for a new methodology for identifying, reporting and acting on “action levels” of airborne emissions and liquid releases.

Environmental Monitoring Program

Margo Curtis presented the 2022 results of OPG Pickering’s Environmental Monitoring Program, which looks at radiological and non-radiological emissions from the plant. The site public doses remain a small fraction of both the annual legal dose limit and the annual natural background radiation in the area. A number of CAC members called for these facts to be drawn to the public’s attention.

Groundwater Monitoring Program

Ali Esmaeily presented the 2022 Pickering Nuclear Groundwater Monitoring Program results. He noted that groundwater data collected from the key areas remained stable, which indicates consistent environmental performance. There were no indications of off-site impacts from Pickering Nuclear groundwater.

Public/Community Affairs

Aneliese St. Aubin talked about recent and forthcoming OPG activities in the community. Among the items mentioned: a CBC report on the Pickering Nuclear refurbishment proposal; Tuesdays on the Trail and other summer programs; a national preparedness and emergency response exercise to be conducted at Pickering Nuclear.

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CAC:

Craig Bamford
Pam Collins
Samira D'Souza
Mary Gawen
Bill Houston
Tim Kellar
Sean McCullough
Cody Morrison
Peter Ottensmeyer
Eric (Zhen) Qin
Robert Rock
Dan Shire
John Simpson

Regrets:

Frank Dempsey
Tracy MacCharles
Pat Mattson
Tavis Nimmo
Rishita Peterson
Helen Shamsipour

OPG:

Margo Curtis
Ali Esmaeily
Jon Franke
Lindsay Parks
Analiese St. Aubin

Hardy Stevenson and Associates:

Francis Gillis
Dave Hardy

Topic #1: Health and Safety Moment

Following a Land Acknowledgment, Senior Vice President Jon Franke noted that COVID has re-emerged in the community and has now become one of the flus that can occur in the Fall. He suggested that, if people feel sick, they should consider getting tested for COVID. They should also consider a booster, especially if they are a member of a vulnerable group.

Topic #2: Introductory Remarks

CAC Facilitator Dave Hardy introduced two new Council members:

- Samira D'Zousa is a first-year nuclear engineering student at Ontario Tech University.
- Robert Rock is Ward 3 Councillor for the Township of Scugog. He is Vice President of Conservation Ontario and President of Environmentalists for Nuclear.

Dave also mentioned the death in August of former Council member Doug Lockrey. He noted that Doug had been an exceptional teacher and a gifted artist who documented nature.

Council member Dan Shire said that Doug brought him on to the CAC. He noted that Doug, who died at 91, was hale and hearty almost to the end. Link to obituary: <https://mountpleasantgroup.permavita.com/site/DouglasLockrey.html?s=1#>

As well, Dave talked about Donna Fabbro's resignation from the CAC. Donna was a Council member for over 10 years. She brought a business perspective to the table and was a thoughtful contributor to every meeting.

Topic #3: Review of Minutes

The minutes from the CAC meeting of June 20, 2023 were approved without changes.

Topic #4: Comments from the Community

Council members talked about feedback about OPG that they are getting from their neighbours and co-workers.

A member said he is hearing a lot of talk about SMRs in his community. He remarked that an OPG visit to northern Durham Region communities with updates about nuclear projects in general would be very welcome.

Jon noted that Small Modular Reactors of different sizes are designed to meet different challenges. The SMR at Darlington is a grid-scale facility. He indicated that OPG would be interested in updating communities in the northern part of Durham Region about SMRs as well as refurbishment of CANDU reactors.

Another member remarked that, even though SMRs have been in the news, the general population is unaware of them compared to their awareness of CANDUs.

It was noted, however, that a recent event at Darlington, which included a presentation on SMRs and booths on relevant industries, was well attended by the public. Such an event was suggested for communities such as Scugog.

A member noted that 10 new buildings are being proposed for the Pickering area, nine of them 50 stories. People are concerned that traffic is already a huge problem in the area. At previous meetings, CAC members commented on traffic management as part of the Emergency Management Plan.

Jon suggested a presentation on this issue at a future Council meeting.

A member remarked that there should be more OPG outreach to Ontario Tech University. Jon noted that OPG works closely with Ontario Tech and, among other extensive initiatives, is involved in training programs at the university.

Topic #5: Site Update

Jon presented a site update:

- Units 1, 4, 5, 6, and 7 are all operating at full power.
- Unit 8 is in a planned maintenance outage. Included in this particular outage is a chemical clean of the boilers.
- As has been planned for some time, Units 1 and 4 will be shut down and put into safe storage at the end of 2024.
- But in 2022, Premier Doug Ford and Minister of Energy Todd Smith had asked OPG to explore ways to get more use out of Pickering Nuclear to meet the grid needs of 2026. In response, OPG did an analysis and concluded that extending the life of Units 5 – 8 to the end of 2026 would be feasible. In June, OPG submitted a licence application to the Canadian Nuclear Safety Commission (CNSC) for such a life extension. A CNSC public hearing on the extension is scheduled for June 17, 2024.

- The province also asked OPG to look at the potential for refurbishing Units 5 – 8. OPG has demonstrated at Darlington that it can carry out refurbishment on time and on budget. Last month, OPG's board agreed with and authorized OPG to submit the feasibility assessment to the Province. OPG hopes to hear back from the government by the end of the year, however the timeline for a decision is with the government. In the meantime, OPG continues to look at preliminary planning for a potential refurbishment.
- OPG would replace all the fuel channels in Units 5 – 8, as has been done in the Darlington refurbishments.
- Regarding algae issues, newly refurbished units at Pickering would bypass the problem by drawing water from near the bottom of the lake one-and-a-half kilometres from the shoreline. Such an approach would also be better for the environment.

Jon responded to Council questions:

- *How many refurbishments have been completed at Darlington to date?*
Units 2 and 3 have been completed. Units 1 and 4 are in refurbishment. Right now, the province is relying more on Pickering, which is currently meeting 14 percent of Ontario's power needs.
- *The press is now acknowledging the need for new sources of energy in the province.*
More hydro and nuclear are needed to meet future needs.
- *Is refurbishment of Units 1 and 4 a possibility?*
Those two units are of an earlier design. We're not excluding that possibility, but that would not even be looked at until we've made a decision about Units 5 – 8.

Dave asked if there should be a CAC intervention in the CNSC public hearing about the life extension of Units 5 – 8. A member noted that the Council has traditionally made interventions in CNSC licensing hearings for OPG. Another member said it is important for the CAC to make the public aware of all the due diligence the group does regarding the issues about OPG raised in CNSC hearings.

Jon said it is useful for OPG to hear Council voices, and a CAC intervention would be appropriate.

It was agreed that the Council should make an intervention. Asked if the intervention should be written only or publicly presented, members seemed to call for a public presentation.

Topic #6: CNS Distributes Geiger Kits to High School Students

Council member Peter Ottensmeyer talked about a Canadian Nuclear Society (CNS) initiative that hands out Geiger kits to high schools to measure naturally occurring radioactive materials, such as potassium chloride. Students are fascinated by the Geiger counters' reaction to radioactivity in such demonstrations as rubbing a balloon to capture radon. The CNS welcomes suggestions of high schools that would be interested in receiving a kit. Peter is a vice-president of the CNS.

Topic #7: Action Levels for Reporting Environmental Releases

At OPG, there are levels of environmental releases that trigger action by OPG and reporting to the CNSC. These "action levels" are far below regulatory limits. Ali Esmaeily, Section Manager Environment, talked about a new methodology that OPG is using to identify such action levels (Appendix 1).

Ali stated that action levels are precautionary measures, which are put in place to ensure that regulatory limits associated with airborne emissions and liquid releases are not exceeded. Action levels:

Identify – Identify quantity or concentration deviations from normal range of releases.

Act – Provide process control feedback to return to normal operations.

Notify – Report to the CNSC with investigation results and actions to ensure no loss of control takes place.

Feedback – Re-evaluate actions levels and controls as determined.

Ali noted that action levels have been calculated using a Derived Release Limit (DRL), which are releases limited to less than the public dose limit of one milliSievert (mSv), that is, one thousandth of a sievert, per year to a "representative person." This is a tiny percentage of the background radiation that the public is exposed to.

Historically, the methodology used to calculate action levels has been approximately 10 percent of the DRL.

The CNSC has proposed a new methodology that replaces inconsistent approaches by nuclear licensees. It will provide transparency and structure with a standard statistical approach based on predicted or operating history. The old methodology was based on protection of humans from radiation. The new methodology also includes protection of the environment from both nuclear and hazardous substances. New action levels (and planned Licence Release Limits) are based on the control technology in place and are not exposure (dose) based.

Action Level Exceedances

In discussing the meaning of action level exceedances, Ali noted that exceeding an action level is by no means a violation of the licence or regulations. The demonstration of appropriately responding to action levels is itself a demonstration of responsible operation and oversight.

An action level serves as an early warning system to indicate when releases may be deviating from the norm. Should an action level be exceeded, OPG will:

- determine if there has been a “loss of control” by implementing an investigation,
- identify the cause of the exceedance, and
- take action to restore the effectiveness of the radiation and environmental protection program.

Ali emphasized that these OPG actions are based on internal, not regulatory, decisions

He then presented charts of action levels for airborne and waterborne emissions of radionuclides from Pickering and from Darlington.

Ali responded to Council questions:

- *In the action level charts, why are there differences between Pickering and Darlington?*
Each plant has different total levels of releases.
- *So, the new action levels mean OPG submits more information to the CNSC.*
Yes.
- *What was the driving force to change the methodology of determining action levels?*
The CNSC wanted to see more reports about OPG’s monitoring releases and actions taken to ensure prevention of loss of control.
- *What is CNSC’s goal in mandating a new methodology for determining action levels and, as a result, calling for more reports?*
That I do not know. For OPG, we will act as we always have to ensure no loss of control in releases to the environment.

Topic #8: Environmental Monitoring Program

Margo Curtis, Environmental Advisor, presented the 2022 results of OPG Pickering’s Environmental Monitoring Program (EMP) (Appendix 2).

The annual public doses resulting from Pickering Nuclear operations remained at very small fractions of their respective Derived Release Limits. (As noted previously, DRLs are limited to less than the public dose limit of one milliSievert (mSv), that is, one thousandth of a sievert, per year to a “representative person.”) Margo presented details in graphs and charts.

472 laboratory analyses were performed for the 2022 Pickering dose calculations. The 2022 site public doses remain a small fraction of both the annual legal dose limit and the annual background radiation in the area. Dose calculations and the annual EMP report were reviewed and verified by an independent third party.

Tritium in drinking water measured at local water supply plants remained at a small fraction of the Ontario Drinking Water Quality Standard of 7,000 becquerels per litre (Bq/L) and OPG’s voluntary commitment of 100 Bq/L.

Two self-assessments were completed this year for the EMPs. No significant findings were identified.

Margo noted that the 2022 EMP report was submitted to the CNSC on April 19, 2023 and is available at www.opg.com.

Margo also presented the results of the 2022 Impingement and Entrainment Monitoring Program at Pickering Nuclear. Impingement refers to fish entering the plant intake with cooling water flow and then making physical contact with screens. The combined impact of all species and ages impinged in 2022 was 2,478.96 kilograms, a rate equivalent to 0.5 kg per million cubic metres of station intake volume.

Regarding Environmental Risk Assessments (ERAs) overall, the Pickering Nuclear ERA concluded that the site is operating in a manner that is protective of human and ecological receptors residing in the surrounding area.

Margo responded to Council questions:

- *OPG needs to emphasize the difference between legal limits for radiological releases and the vastly larger amount of natural background radiation.*
- *But the plant is still adding to that natural radiation, however minutely.*
(Jon remarked that there is more natural radiation in other locales than Pickering.)
- *Is OPG telling the public about the miniscule level of public dose from the plant as compared to the legal limit and to the vastly greater background radiation?*
There are tons of models and studies out there, including from the CNSC.
- *But the lay person won’t go to those information sites.*
The CNSC’s “carrot chart” illustrating radiation dose examples from everyday life (see Appendix 2, slide 5) is particularly effective.

- *There may be opportunities to make such illustrations more widely available.*

Analiese St. Aubin noted that OPG has information on line regarding the various kinds of radiation doses: [Nuclear safety & emergency preparedness > Radiation safety - OPG](#)

- *Why is the dose to children and to adults measured separately?*
The activities of children and adults result in different exposures; e.g., the child tends to go in the water, while adults sit on the sand.
- *Is wind direction taken into account?*
Yes.
- *In the site update, Jon mentioned a chemical clean of the boilers. Are the releases from this cleaning monitored.*
(Ali said such releases were monitored but in a different protocol from emissions measures.)

Topic #9: Groundwater Monitoring Program

Ali presented the 2022 Pickering Nuclear Groundwater Monitoring Program results (Appendix 3). He noted that the groundwater flow patterns at the site remain consistent with original interpretations. Groundwater data collected from the key areas remained stable, which indicate consistent environmental performance. There were no indications of off-site impacts from Pickering Nuclear groundwater.

The groundwater report and Geographic Information Systems (GIS) maps are available at www.opg.com.

A Council member remarked that there was insufficient contrast on the screen in the slides presented.

Topic #10: Public/Community Affairs

Analiese St. Aubin, Manager Corporate Relations, talked about recent and forthcoming OPG activities in the community.

Tours

- A CBC reporter toured Pickering Nuclear on August 4. The story he is pulling together will be based on the question of Pickering refurbishment. The story is expected to come out this week, on all platforms including broadcast, web and print.

- Journalists from the on-line outlet, Peak Media, toured that station on August 23. The resulting podcast focuses on the nuclear landscape and the future of Pickering.
- Three councillors from the Township of Scugog toured the station and the Pickering Waste Management Facility (PWMF) on August 29. (One of the councillors, Robert Rock was present at the CAC meeting and has joined the Council.)

Community

- The Pickering Library Summer Reading Launch took place on July 8. 755 community members stopped at the OPG booth.
- On August 30, the Environmental Stewardship Partnership (OPG, Toronto and Region Conservation Authority, City of Pickering) conducted a butterfly tagging program called Monarch in Migration, a free family program.
- Another successful season of Tuesdays on the Trail took place on four Tuesdays through July and August at Centennial Park in Pickering. This year, 620 families participated in this free program that OPG conducts with a number of community partners.
- The latest issue of the Neighbours Newsletter is now in mailboxes in Durham Region.

Developments at OPG

- Coming up on Sept. 27 – 28, Exercise Unified Command (ExUC 2023) is a multi-day preparedness and emergency response exercise that will be conducted at Pickering Nuclear and include many partners such as the Region of Durham, City of Toronto, City of Pickering and various other provincial and federal agencies.
- The Centre for Canadian Nuclear Sustainability (CCNS) will be winding down its operations on Sept. 30. It will transition into a project engagement hub for OPG Nuclear Sustainability division priority initiatives. Public energy education will continue at OPG's corporate office.
- The Darlington Nuclear refurbishment program maintains its high safety and quality standards, while continuing to make significant improvements to work programs from unit to unit:
 - There are four units at Darlington. Unit 3 returned to full commercial operations on July 17, 2023, 169 days ahead of schedule. Unit 3 is the second Darlington unit successfully refurbished, completed in 35 months.
 - Unit 2 refurbishment was completed in 44 months.
 - Reassembly of the Unit reactor 1 continues to progress extremely well.
 - Unit 4 refurbishment began on July 19.

- On July 7, provincial energy minister Todd Smith announced the government will work with OPG to commence planning and licensing for three additional small modular reactors (SMRs), for a total of four at the Darlington New Nuclear site.

Council member Robert Rock described the Darlington plant tour he participated in as “fantastic.” He remarked that the reactor mock-up at Darlington saves time when workers begin actual refurbishment. He added that lessons from Darlington refurbishment will be applied to proposed refurbishment at Pickering.

Topic 11: Concluding Comments

A Council member recommended the film, *Nuclear Now*, directed by Oliver Stone. The movie played at a theatre in Pickering. It presents nuclear energy as a way to meet the challenge of climate change.

Another member criticized the CNSC for mandating a new methodology for action levels regarding releases and, as a result, calling for more reports. He foresaw a “never-ending problem,” as the Commission will keep calling for lower and lower action levels.

Jon thanked CAC members for their time and engagement with OPG. He said members were welcome to call him and the communications staff at any time between meetings.

Next Meeting

Pickering Nuclear Information Centre
Tuesday, Nov. 21, 2023
4 pm – 7 pm