

**Pickering Nuclear Generating Station
Community Advisory Council
Pickering Nuclear Information Centre
Meeting Minutes, Sept. 18, 2018
Highlights**

Site Update

Randy Lockwood reviewed the productivity of the plant, provided details about the recent renewal of Pickering Nuclear's licence for a 10-year period, described this summer's algae challenges and talked about external reviews of plant performance. Randy introduced Richard Geofroy who talked about the barriers that lake water coming into the station passes through before entering the Condenser Cooling Water and Service Water systems.

Community Update

Analiese St. Aubin talked about OPG involvement in community activities: this past summer's Tuesdays on the Trail program and several upcoming events, including the Durham Children's Watershed Festival, Take Pride in Pickering tree planting, and a Darlington Open House event.

Groundwater Issues and Public Communications

Randy Lockwood and Raphael McCalla discussed Pickering Nuclear's groundwater monitoring program. CAC members made preliminary comments on how to communicate data from the program and agreed to bring back more detailed feedback at the next meeting.

New Nuclear Development

Jeff Lehman talked about new nuclear projects at OPG, with a particular focus on small modular reactors (SMRs). Council members were impressed with the potential uses of this technology.

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Pickering CAC:

Donna Fabbro
Mary Gawen
Bill Houston
Tim Kellar
Greg Lymer
Pat Mattson
Sean McCullough
Zachary Moshonas
Dan Shire
John Stirrat
Ralph Sutton
Deborah Wylie

OPG:

Richard Geofroy
Jeff Lehman
Randy Lockwood
Raphael McCalla
Glenn Pringle
Analiese St. Aubin

PDA:

Francis Gillis
John Vincett

Guest:

John Miseresky

Regrets:

Jim Dike
John Earley
Keith Falconer
Kristin Hall
Donald Hudson
Moe Perera
Helen Shamsipour
Anna-lisa Tersigni

Topic #1: Introductory Remarks

CAC Facilitator John Vincett thanked Council members Bill Houston, Tim Kellar, Zachary Moshonas, Ralph Sutton and Anna-lisa Tersigni for their participation in the CNSC hearing in June regarding the renewal of Pickering Nuclear's licence to operate.

John noted that the latest issue of NWMO News is now available:

<https://www.nwmo.ca/~media/Site/Files/PDFs/2018/06/28/09/49/NWMO-News-V162--2018.ashx?la=en>

Topic #2: Review of Minutes

Regarding the June minutes, the following changes were called for:

Page 3, first bullet point, penultimate sentence: change “a number of little things” to “a number of miscellaneous things”.

Page 4, second paragraph, last line: fix typo; change “as wel get closer” to “as we get closer”.

Page 5, first paragraph following bullet points at top: TRCA is now known as “Toronto and Region Conservation Authority”. This change should also be made in the attendance list on page 2.

Page 5, last paragraph about OPG's installation of first round of chargers for electric vehicles: change the phrase “though speed remains a challenge” to “though speed of charging remains a challenge”.

With these changes, the CAC minutes for June 19, 2018 were approved.

Topic #3: Site Update

Senior Vice President Randy Lockwood presented a site update:

- OPG appreciates the CAC intervention in the CNSC hearing on the renewal of Pickering Nuclear's licence. It is important that the Commission hear from members of the public with experience of nuclear plant issues.
- Units 1, 4, 5, 6, and 7 are operating at full power (Units 2 and 3 are offline in safe storage). Unit 8 is in a planned maintenance outage. This is the third and final planned outage of the year. Outages are driven by inspections. From August 20, 2017 to June of this year, there have been a total of 413 days of planned outages across the six units now operating at the plant.
- The CNSC has granted OPG a 10-year licence for PNGS (covering operations to 2024 and post operation activities from 2025 to 2028). This is a “clean” licence, meaning no additional hearings will be required to 2028, though the Commission does require a mid-cycle review in 2022 or 2023. OPG has made a number of commitments to the regulator, among them:
 - If Pickering proposed to extend operations beyond 2024 (for which there are no plans at this time) OPG would have to re-appear before the CNSC.
 - OPG will work to raise nuclear and emergency preparedness awareness among the general public, and will collaborate with a CNSC working group to achieve this goal.
 - OPG will release groundwater data in a way that makes most sense for

the general public.

- The CNSC annual report on nuclear facilities in Canada will be issued in November. Pickering received a rating of Fully Satisfactory in 2017.
- This week the plant will be visited by OSART (the Operational Safety Review Team), from the IAEA (International Atomic Energy Association). This will be a follow-up from their 2016 inspection of the plant. OSART has been pleased with the positive improvements at PNGS, which has acted on their suggestions made in 2016. OPG will release the OSART report on its public website, once it is finalized.
- On October 9, Pickering Nuclear will conduct a nuclear safety survey of its staff, support staff and vendors. This survey is conducted every three years.
- WANO (the World Association of Nuclear Operators) will be back in the first week of December for a follow-up to their previous visit.
- A recent algae event forced Units 5, 6, 7, and 8 offline. The event was due to the unexpected amount of algae and the earliness of its appearance this summer. The event was related to a very warm summer.

Randy responded to Council questions:

- *Did the algae event have any safety implications?*
No, it was not a safety issue but a production issue. The Pickering plant draws its cooling water from the surface of the lake, which is where the algae tends to be.
- *Would it be feasible to put herbicide into the lake to address algae?*
That is not an unusual suggestion, and it would be feasible if we were working on a much smaller scale. But we have the net barrier, which is a good approach for the size of lake area that we are working with. As well, the whole question of adding herbicides raises other questions about whether that approach might impact water quality adversely.

Randy introduced Richard Geofroy, who is PNGS Operations Manager. Richard oversees the safe and reliable operation of the plant.

Richard presented a water intake overview (Appendix 1). He noted that two million gallons of lake water a minute are drawn into the plant as whole. This water passes through a series of barriers before entering the Condenser Cooling Water and Service Water systems:

- Fish Diversion System
- Bar Screens
- Travelling Screens
- Additional system-specific filtration systems

As water coming into the plant goes through each barrier, it is further filtered. Plant staff also

take steps to address problems before they trigger a defence mechanism, which shuts down the whole system. The plant uses predictive tools so earlier action can be taken to prevent problems.

Richard noted that Darlington does not have the same kind of algae problem, as it has a deep water intake. But there are pros and cons to each approach.

Richard also presented a video showing algae passing through a screen house to become a wet carpet.

Richard responded to Council questions:

- *Does the algae have any value, as biomass?*
It could have value in small amounts for individual gardens, but the large amounts removed from the Pickering plant barrier go to landfill.
- *Are the dive team that support operation of the net from outside OPG?*
No, they are OPG employees.
- *Is algae an issue in the winter?*
No, winter brings different challenges, such as ice.
- *Where is the harvester tool used?*
In the forebay.

Randy remarked that OPG needs a better idea of what is going on around the plant intake. He noted that satellite shots are showing the extent of the algae in this area.

The predictor tool can tell plant managers if they need to reduce power production because less water is coming into the plant.

OPG is exploring all possible ways to reduce algae. The algae event that caused Units 5 through 8 to shut down occurred in the middle of summer, July 22. A lot of staff were on holiday, but many of them came in to get the units back on line.

Asked if the water treatment plant was experiencing problems with algae, a Council member remarked that the WTP intake is far from shore, which reduces the problem.

Topic #4: Community Update

Analiene St. Aubin, Manager of Corporate Relations and Communications at Pickering Nuclear, talked about OPG involvement in recent and forthcoming community activities:

- Almost 600 community members participated in the Tuesdays on the Trail program at Pickering, hosted by OPG and its community partner organizations. The plant got great

feedback from participants.

- Five thousand Grade 4 students are expected to participate in the 21st anniversary of the Durham Children's Watershed Festival, running from Sept. 24 through 28.
- Take Pride in Pickering Tree Planting will take place on Saturday, Sept. 29. This is a joint venture of OPG, the City of Pickering, Toronto and Region Conservation Authority and other partners.
- The Darlington Open House event will take place on Saturday, Oct. 27, providing the public an opportunity to learn more about the station's refurbishment. Among the activities is a visit to the world's first, full-scale nuclear reactor mock-up.
- The Fall edition of Neighbours will be delivered to homes before the end of October.

Topic #5: Groundwater Issues and Public Communications

Randy and Raphael McCalla (Director, Environment Operations Support at OPG) discussed groundwater issues.

Randy noted that OPG made a commitment to the CNSC at the Pickering licence renewal hearing to communicate to the local community about groundwater issues. In the lead up to the hearings, OPG decided to post as much information as possible on the website. Management also arranged tours. Some members of the public were asking for raw data on everything, something which is extremely difficult to contemplate, given the very large datasets involved and the considerable extra contextual information that would be required to make sense of this information.

Randy also indicated to the CNSC that OPG would get feedback from the CAC on the best way to communicate to the public on groundwater issues. So the challenge for the Council is to offer advice on what should be communicated about groundwater information in a way that is consistent with OPG's commitment to transparency and yet makes the information provided useful and meaningful to the reader.

Raphael then talked about the groundwater monitoring program at Pickering and asked for CAC input on how best to communicate to the public about the program. Raphael also distributed copies of an illustration of the Site Perimeter and Protected Area Groundwater Tritium Concentrations for 2017 along with Figure C-28: Tritium Data Evaluation Summary for MW-090-20. He invited Council members to review these handouts between now and the next meeting and to bring back comments on how best to illustrate this data.

Raphael responded to Council questions and comments:

- *I suggest you use blue and another colour in the diagram on groundwater tritium concentrations. It could be used to distinguish between water you drink versus water*

you play in.

Different uses of the water are already taken into consideration.

- *Illustrate the plume with a cloud and groundwater flow direction with arrows.*
- *You passed around a copy of the groundwater report. Can we capture significant points from the report and put them on the graphic?*
- *Make an executive summary of the report available to the public.*
Yes, and we may want to add a little more explanation to that summary.
- *Regarding the Tritium Data Executive Summary graph, I don't think the average person would understand the little green triangles.*
- *Yes, you need three or four sentences to explain the graph.*
- *And explain the outliers in the graph.*
- *Provide a simple layer of information on the public website, with access to more detailed information to those who want it.*
- *What happens around groundwater monitoring when Pickering stops operating? You need to say something about that.*
(Randy indicated that groundwater monitoring would continue after close of operations.)

John Vincett indicated that PDA would pull information from CAC discussions about groundwater issues recorded in CAC minutes over the years. These would be discussions that came up during the years when the 160 Issues were being addressed as well as other discussions.

It was agreed that the CAC will provide more detailed feedback at the next meeting on communicating around groundwater issues.

A Council member remarked that the groundwater report seemed understandable and expressed interest in getting a hard copy. OPG will take this request into consideration. He noted that the report is on OPG's public website now. "We value transparency," he said, "and are looking for different ways of achieving that transparency."

Topic # 6: New Nuclear Development

Jeff Lehman, Vice President of New Nuclear Development, talked about new nuclear projects at OPG, with a particular focus on small modular reactors (SMRs), which are quite different from grid-sized reactors (Appendix 2).

Jeff cited the advantages of SMRs and noted that CNSC regulators are open to the concept of alternative nuclear energy sources. He talked about the potential uses for SMRs in Canada and presented a map of the potential market in this country.

An important advantage of SMRs is that the module is taken away when its operating life is over.

Jeff emphasized that it is important that OPG take a leadership role in this emerging area, given their expertise in the subject, to ensure safe and efficient operation of SMRs.

Jeff responded to Council questions:

- *Will the modules use CANDU technology?*
No, the CANDU design does not lend itself to SMRs.
- *From where would OPG draw the materials needed for constructing SMRs?*
There is a mix of vendors in Canada and elsewhere.
- *Are there impending trade issues?*
The trade issue looks positive for Canada. The Canadian Manufacturers Association is among the leading candidates in the world for the components involved in this technology.
- *This is very exciting stuff. The advantages over diesel generators must be huge.*
- *What other new nuclear technologies are being considered?*
There are always new ideas being contemplated that involve nuclear energy in its various forms. Currently, it is the idea of smaller customized reactors generally known as SMRs that are the concept with the most useful practical potential.
- *Are there security issues with small modular reactors?*
Security is much less of an issue with SMRs. The modules don't need to draw directly from an external body of water or from an external power source. Even in a worst case scenario, an SMR's fuel will not melt. As well, in many designs the modules are placed underground, so there is no practical way to get access to them.

Topic #7: CNSC News

For selected news items from the CNSC, please see Appendix 3.

Next Meeting
Tuesday, October 16, 2018, 6 pm
Pickering Nuclear Information Centre
(supper available at 5:30 pm)