

**Pickering Nuclear Generating Station  
Community Advisory Council  
Pickering Nuclear Information Centre  
Minutes, October 15, 2019  
Highlights**

**Site Update**

Randy Lockwood presented an update on the operating status of the units, details from the ongoing planned outage of Unit 5, a report card on the site's excellent industrial safety performance, a recent Connecting Youth to Skilled Trades event and other items.

**Introduction to WANO**

Jeff Lehman presented an introduction to WANO (the World Association of Nuclear Operators). He also talked about WANO's upcoming intensive review of Pickering Nuclear.

**Community Affairs**

Analiese St. Aubin presented an update on OPG involvement in conservation events aimed at children and youths. She also talked about the removal of the wind turbine at Pickering Nuclear (the unit had come to the end of its life), an upcoming open house at Darlington and the Bring Back the Salmon program.

**Nuclear Chemistry at PNGS**

Shiva Habibi presented an overview of the Chemistry and Environment Department at Pickering Nuclear. This department controls all aspects of chemistry at the plant, including environmental monitoring, chemistry control of equipment and chemical analysis.

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**Pickering CAC:**

Frank Dempsey  
John Earley  
Natalie Harder  
Julie Kim  
Tracy MacCharles  
Pat Mattson  
John Miseresky  
Zachary Moshonas  
John Stirrat  
Deborah Wylie

Regrets:

Donna Fabbro  
Kristin Hall  
Bill Houston  
Tim Kellar  
Greg Lymer  
Sean McCullough  
Peter Ottensmeyer  
Helen Shamsipour  
Dan Shire  
Ralph Sutton

**Guest:**

John Simpson

**OPG:**

Shiva Habibi  
Jeff Lehman  
Randy Lockwood  
Analiese St. Aubin

**PDA:**

Francis Gillis  
John Vincett

## **Topic #1: Review of Minutes**

The minutes from the CAC meeting of Sept. 17, 2019 were approved without changes.

## **Topic #2: Site Update**

Site Vice President Randy Lockwood presented a site update:

- Of the six active units at Pickering, Units 1, 4, 6, 7, and 8 are operating essentially at full power. The maintenance outage of Unit 5 continues and is expected to be completed by year end. This is an ambitious outage, involving draining the moderator (heavy water), and inspecting feeders (which link the reactor to the steam generator) and fuel channels. The team is set on continuous improvement, making each outage more effective and efficient than the previous one. Units 2 and 3 remain defuelled and in safe layup.
- At Pickering, the Report Card on industrial safety continues excellent, with performance exceeding target three years in a row. Also, the cost per megawatt of electricity has been reduced to the shareholder by a total of \$25 in the last three years.
- A WANO (World Association of Nuclear Operators) team recently made a pre-visit to the site. Their reaction was very positive. The exercise is very intrusive, which makes for a very thorough review.
- A Connecting Youth to Skilled Trades event was held at the Pickering site on Sept. 24. This event was very successful, with approximately 300 students and their parents in attendance. Speakers talked about the apprenticeship options available and a number of programs at Durham College feed in to that demand for apprentices in fields like diving, crane operators, drone drivers. It was good to see that a couple of female apprentices were among the speakers. There were booths set up for further information gathering and to make contacts, including one from Women In Nuclear.
- At Darlington, the refurbishment of Unit 2 is proceeding with the installation of 960 feeder tubes in the reactor, a task that began last spring and will be completed some time this fall. The final steps in the refurbishment involve filling the reactor with heavy water and loading 1600 bundles of new fuel. The refurbishment of Unit 3 will start around April 1, 2020.

Randy responded to Council questions:

- *How long was the Connecting Youth to Trades session?*

It was an evening session of two to three hours, featuring speakers, demonstrations and booths.

- *What was the reaction of those attending?*  
It was very well received.
- *It was nice to see a number of young women in attendance.*
- *Is the refurbishment at Darlington still on time and on budget?*  
Overall, the project is still on time and on budget. However, the schedule for Unit 2 is behind. The first unit in a refurbishment series is always the most difficult. The lost time will be made up for in subsequent unit refurbishments.

Randy also mentioned development applications received by the City of Pickering and a request related to the 914-metre exclusion zone which is measured from the external surface of the closest reactor around the Pickering site. The developer, Pickering Harbour Company Ltd., is seeking amendments to the exclusion zone to accommodate a new development proposal involving two 23-storey buildings containing 498 condominium apartment units. The federal regulator has restrictions regarding what can and cannot be done within the zone. OPG's main interest is to protect the public. The developer will be hosting an Open House on Oct. 17 to address this issue. Right now, OPG is engaged in a safety analysis to determine how best to address exclusion zone issues as the station approaches the end of commercial operations.

A Council member remarked that the developer's plans are ludicrously close to the plant. He also expressed the fear that these plans are a fait accompli.

Randy stated that, as long as Pickering Nuclear is operating and as long as fuel is still in the reactor cores (for some time after the close of commercial operations), the exclusion zone will continue to apply. Once OPG has removed the fuel and water from the reactors, they will start to reduce the exclusion zone.

Randy took the opportunity to note that there are five barriers set up to guard the community from nuclear operations:

1. The fuel matrix
2. The sheath around the fuel
3. The transportation system
4. The containment system
5. The exclusion zone

The station's licence to operate extends to Dec. 31, 2024. The shutdown is a sequential operation; it does not take place all at once.

### **Topic #3: Introduction to WANO**

Jeff Lehman, Vice President, New Nuclear Development, presented an introduction to WANO, the World Association of Nuclear Operators (Appendix 1). Jeff was seconded to WANO for two years at their North American office in Atlanta, Georgia.

He noted that nuclear is a highly regulated industry. It also has self-regulating bodies, of which WANO is one. It is supported by the nuclear industry and integrated with it. WANO's mission is to maximize the safety and reliability of nuclear power plants worldwide through mutual support, exchange of information and emulation of best practices. The organization's vision is that WANO and its members will be world wide leaders in pursuing excellence in operational nuclear safety for commercial nuclear power. Jeff remarked that "excellence" is always a moving target; WANO keeps raising the bar.

WANO offers:

1. Peer review
2. Performance analysis
3. Member support
4. Training and development

Tom Mitchell, a former president of OPG, is the current chairperson of WANO.

Jeff then talked about the WANO Peer Review Follow-Up to take place at Pickering Nuclear. The PRFU is a two-week intensive review from Oct. 28 – Nov. 8 to understand the progress Pickering has made since the 2017 Peer Review and where it is headed in the future. This review is based on two years of near-continuous monitoring and information exchange. It is an opportunity for the station to learn from the best in the industry and accelerate its improvement plans. It ensures Pickering's work meets the highest standards of the industry.

Jeff noted that a pre-visit of WANO representatives to the site took place just this past week. The whole focus of WANO is to provide critical feedback. The reviewers found a young team at Pickering who are very enthusiastic, despite the shutdown taking place in a few years.

Jeff presented a Pickering roadmap for the future:

**2019** – continuing best ever performances during outages

**2020** – continued push towards innovation velocity

**2021** – getting even closer to being CANDU leading when it comes to thinking and doing things differently

Jeff responded to Council questions and comments:

- *Can you tell us a bit about the Candu Owners Group?*  
COG is a self-funded professional institution working with CANDU plants around the world. This group, which started about 20 years ago, focuses on information sharing.
- *Do you anticipate WANO feedback on readiness for closing?*  
This upcoming review will focus on the present. Later visits will address the shutdown.
- *Are the results of the review shared with the regulator?*  
Actually, no. Given the WANO focus on being critical, points made in their report could be very harmful if taken out of context. (Randy added that self-regulation comes from peer pressure rather any regulatory body.)
- *Is there a ranking system in the review?*  
Yes. OPG is in the top tier.
- *I was surprised to see that Russia is a member of WANO.*  
All current nuclear plant operators are members.
- *Is there some level of communicating the results of the review back to employees?*  
Yes, but we never disclose the rating.
- *Have you considered bringing in representatives of other industries to join the review team?*  
WANO and the Institute of Nuclear Power Operators (INPO) have quite a diverse makeup themselves. But we could consider other industries that have to meet significant safety challenges, such as airlines.
- *Does the WANO review address the social licence aspect of your operation?*  
Young people joining our staff bring in a different way of looking at social licence issues.

Randy remarked that he has never seen anything like WANO for the level of transparency expectations. During the review, he said, “all our books are open.” That is one reason why the results of the review have to be kept confidential.

Jeff concluded the discussion with a reference to Nuclear Science Week and initiatives of North American Young Generation in Nuclear (NAGYN).

## **Topic #4: Public and Community Affairs Update**

Analièse St. Aubin, Manager of Corporate Relations and Communications at Pickering Nuclear, presented an update on OPG involvement in community activities:

- On Sept. 21, OPG participated in the Thickson Woods annual “Bird, Beavers and Butterflies Nature Festival,” enjoyed by over 600 participants of all ages.
- On Sept. 28, a fantastic fall morning brought over 100 community members including air cadets, scouts, employees, and their families to help plant over 300 trees and shrubs along the Pickering Waterfront Trail. Special guests at the Take Pride in Pickering event included Mayor Dave Ryan, MPP Peter Bethlenfalvy and OPG Pickering’s Director of Maintenance & Operations Richard Geofroy.
- The Central Lake Ontario Conservation Children’s Watershed Festival (Sept. 23 to 27) took place at Camp Sumac in Oshawa and hosted over 5,000 Grade 4 students from across the Durham Region.
- Pickering Nuclear has been nominated for a Business Excellence Award by the Board of Trade in the 40+ employees category.
- The theme of this year’s Darlington Open House, on Saturday, Oct. 26 from 10 a.m. to 4 p.m., is Innovating for Tomorrow.
- The wind turbine on the Pickering Nuclear site has now been removed. (Analièse presented a short video of the dismantling of the turbine. The remarkable skill of the crane operator was noted.)
- The Bring Back the Salmon program continues with an opportunity this time of year to see the salmon run in rivers and streams to lay their eggs before winter. While OPG doesn’t track the salmon that are part of its specific Bring Back the Salmon program, the Ontario Ministry of Natural Resources and Forestry confirmed that on July 27, 2018, the first returning Atlantic Salmon adult from the 2016 yearly stocking of the Ganaraska River swam through the fish counter. OPG will continue the classroom program in 2020 at both the Pickering and Darlington sites.

## **Topic #5: Nuclear Chemistry at PNGS**

Shiva Habibi, Manager, Chemistry and Environment, presented an overview of her department (Appendix 2). This presentation was in response to questions raised during last month’s plant tour about the role of chemistry in the operation.

The Mission of the Chemistry and Environment Department is to control all aspects of chemistry at the plant. The department includes an environment monitoring team, a

chemistry control team, and a chemistry laboratory team. The work of the three teams lives up to OPG's Environment Management System (EMS). OPG holds a certificate of regulation to the EMS standard of the International Organization for Standardization, which provides assurance to employees and stakeholders that environmental performance is being measured and continually improved.

To protect the public, Pickering operates under numerous environmental regulations governing plant operations. The primary regulators from an environmental perspective are the CNSC and the Ontario Ministry of the Environment, Conservation and Parks (MECP).

Shiva detailed Pickering's environmental monitoring programs and assessment, and the chemistry control to ensure safe operation of equipment and systems. She listed 18 systems subject to chemistry controls. She also discussed Pickering's quality control of equipment used for tests and calibrations as well as the Chemistry and Environment team's commitment to safety. The chemistry lab team has completed 32 years without a lost time accident.

Shiva responded to Council questions:

- *Do you get enough warnings through the chemistry alarm systems to deal with problems in a timely manner?*  
Yes, we do. It is almost always an incremental change that we are dealing with. We track trends and then act to deal with a change in the chemical makeup of the materials in the pipes. The emphasis is on making the chemical substances as benign as possible in the process, so that the interior surfaces of tubes are not impacted through chemical reactions.
- *I've heard about OPG extracting Carbon-14 and using it in industry. Is OPG interested in that research?*  
We are continuously making sure that we are reducing C-14 emissions and, yes, we are looking at new research to see how we can use innovative ideas.
- *In a nuclear reactor, is there a reaction in the tubes carrying heavy water that creates gaseous matter?*  
There is some gaseous production because of radiolysis of water, but it is contained in the system because we have a cover gas, which is an inert gas. We have also continuous monitoring of our cover gas.
- *Did you say that over half a million samples are tested at Pickering each year?*  
Yes, those samples are run through our labs.
- *Do you address incremental risks?*  
We address both incremental and cumulative risks. In terms of radioactive and conventional emissions, we have Action levels for various levels of risk. These

actions are triggered by emission levels that are much lower than regulatory limits.

Randy noted that Shiva and her team do a lot work with other groups to protect plant equipment. They provide reassurance that the plant can operate safely to close of commercial operations.

### **Topic #6: CNSC News**

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

**Next Meeting  
Tuesday, November 19, 2019, at Pickering  
Joint meeting with  
Darlington Community Advisory Committee  
(supper available at 5:30 pm)**