

**Darlington Community Advisory Committee
Pickering Community Advisory Council
Darlington Nuclear Information Centre
Minutes, November 20, 2018
Highlights**

Site Update

Steve Gregoris presented a Darlington site update. He talked about: the operating status of the four reactors on site; equipment and backup generator enhancements; report cards on worker safety and environmental performance; and an industry peer inspection.

Refurbishment Update

Gary Rose presented an update on the refurbishment of Darlington's Unit 2, now 71 percent completed, meaning that the project remains on schedule. Scott Berry presented a video on two very successful events at the site: a student day (400 attending) and a public open house (2800 attending).

Public/Community Affairs

Cheryl Johnston and Analiese St. Aubin presented updates on OPG involvement in community activities: Take Our Kids to Work Day event at Pickering and Darlington; a forthcoming launch of a salmon hatchery at Darlington; poppy distribution which raised funds around Remembrance Day at both sites; and Pickering Nuclear plans to support a number of community Holiday initiatives.

Giving Tuesday, Ontario Nature and OPG

A CAC member, on behalf of Ontario Nature, acknowledged and thanked OPG for their support of a project to protect wilderness areas in the province.

Environmental Monitoring Performance Report

Raphael McCalla presented the 2017 results of OPG's Environmental Monitoring Programs for Pickering and Darlington. He showed that public exposure to radiation from the plants is extremely small.

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Pickering CAC:

Mary Gawen
Kristin Hall
Bill Houston
Tim Kellar
Greg Lymer
Tracy MacCharles
Sean McCullough
Zachary Moshonas
Dan Shire
John Stirrat
Deborah Wylie

Guest:

John Miseresky

Regrets:

Jim Dike
John Earley
Donna Fabbro
Keith Falconer
Pat Mattson
Moe Perera
Helen Shamsipour
Ralph Sutton
Anna-lisa Tersigni

Darlington CAC:

Tanya Albis
Jim Boate
Brenda Metcalf

Guests:

Jenn Lee
Peter Ottensmeyer

OPG:

Scott Berry
Steve Gregoris
Cheryl Johnston
Raphael McCalla
Judy Pitapit
Gary Rose
Analiese St. Aubin

PDA:

Francis Gillis
John Vincett

Topic #1: Correspondence

Panel Facilitator John Vincett noted two recent items:

- Nuclear Waste Management Organization – NWMO News, vol. 16, issue 3: click on <https://www.nwmo.ca/~media/Site/Files/PDFs/2018/10/02/14/44/NWMONewsV1632018.ashx?la=en>

- Letter to Pickering News Advertiser calling for recycling, not burying used nuclear fuel: <https://www.durhamregion.com/opinion-story/9023404-radioactive-fuel-waste-should-be-recycled-not-buried-says-reader/> (For hard copy, see Appendix 1.)

Topic #2: Darlington Site Update

Senior Vice President, Steve Gregoris presented a site update:

- Darlington has a total of four reactors. Units 1, 3, and 4 are operating at full power. Unit 2 is undergoing refurbishment. Unit 4 is gearing up for a planned outage scheduled for Jan. 17, which will last for approximately 80 days. During the outage, staff will ensure that all components are fit for service. There will also be proactive equipment maintenance.
- Darlington uses motors (14,000-horsepower) to circulate water throughout the reactors. The last two motors are to be replaced. They will be shipped by barge from Germany. These new pumps will last 35 years.
- Another emergency-power generator has been installed on the site. These generators provide an extra layer of backup power.
- Installation of new fuelling equipment (inverters) at the site is going well. CANDU reactors are fuelled while in operation, so it is important that fuelling equipment be reliable.
- Darlington has a target of 0.22 reportable injuries. The latest safety report card indicates that the current rate is 0.23.
- The latest report card on environmental performance indicates zero spills at Darlington.
- It is important to keep the confidence of the local community in environmental performance at the site. That is why OPG targets are much lower than regulatory limits.
- Darlington's equipment reliability is on track at 91 percent. In addition, the corrective and deficient backlogs of malfunctioning equipment have been significantly reduced.
- WANO (World Association of Nuclear Operators) representatives were at the site to rank Darlington's performance about three weeks ago. They are writing up their final report, which OPG will review and present to the CAC. WANO reports on Darlington have been excellent over the past six years. Overall, the latest review has been a good one. Their focus was on opportunities for improvement, training, and equipment reliability and trouble shooting. Though the main focus was on opportunities for improvement, strengths were also noted, in particular the culture of innovation. OPG's

X-Lab takes innovative ideas and turns them into reality.

Steve responded to CAC questions:

- *I understand that Darlington has a safety culture, but do you take steps to extend that culture to outside contractors?*
Yes, the same safety standards apply to contract workers. The safety metrics for the station and for projects include contractors.
- *I was surprised to hear that the planned outage is for 80 days. Is that normal?*
Yes. Eighty days every three years works out to the unit being on-line 90 percent of the time.
- *What was the general outcome of the recent CNSC annual report on Pickering and Darlington?*
The CNSC presented this report in Ottawa a couple of weeks ago. Both sites received fully satisfactory ratings. The report also mentioned a few areas where the Commission found that the sites could have done better.

Topic #3: Refurbishment Update

Gary Rose, Deputy Vice President, Unit 2 Execution, presented an update on the Darlington Refurbishment Project (Appendix 2). He referred to the Unit 2 refurbishment schedule:

Segment 1 – Defuel reactor and isolate from the station (completed)

Segment 2A – Prepare for reactor component removal (completed)

Segment 2B – Remove reactor components (completed)

Segment 3 – Install reactor components

Segment 4 – Load fuel, test and restart reactor

Gary noted that OPG is now in Segment 3 (install components) and the refurbishment is 71 percent completed, meaning that the project remains on schedule. All major equipment has been delivered to the site.

Referring to the removal for inspection and return of calandria tubes, a CAC member asked if the tubes were kept at the same temperature in the room they were sent to and the room they were returned to. Gary said the two locations were kept at about the same temperature, and that the tubes were quickly transported from one locality to the other.

Scott Berry, Senior Manager Corporate Relations and Projects, presented a video on the recent student day and open house held at Darlington. He noted that over 400 students attended the day, on which they made such comments as “the best field trip ever.” The event opened their eyes to career opportunities at OPG in a number of skilled trades.

Scott also noted that 2,800 members of the public attended the open house.

He indicated that the great success of the two events was due to tremendous support from employee volunteers.

CAC members were reassured by the progress report on refurbishment and impressed with the two outreach events. Regarding the student day, it was remarked that kids don't know about boiler makers and other skilled trades. Scott noted that such information is going up on the OPG website. He also noted that OPG works closely with skills training at community colleges.

Topic #4: Public/Community Affairs Reports

Public Affairs Manager Cheryl Johnston presented a Darlington site Update:

- Grade 9 students were welcomed to OPG sites across the province on Nov. 14 for Take Our Kids to Work Day. At Pickering, 105 students attended, and 117 attended at Darlington.
- The Clarington Board of Trade will be holding their annual Energy Summit at the Darlington Information Centre on Nov. 28. Additional information can be found at their website: <https://www.cbot.ca/>.
- Darlington Information Centre will be hosting their own salmon hatchery in the coming year, mirroring the tiered educational program and partnership currently running at Pickering. A launch of the program and egg arrival is scheduled for late January.

Analiese St. Aubin, Manager of Corporate Relations and Communications at Pickering Nuclear, presented a Pickering site update:

- To commemorate Remembrance Day, veterans from the Royal Canadian Legion, along with volunteers from OPG, distributed poppies at various locations at the Pickering and Darlington sites. This year employees raised just over \$4,300 at Darlington and close to \$3,000 at Pickering. These funds were for the support of veterans, ex-service members and their dependants through the Royal Canadian Legion.
- Pickering Nuclear is supporting several community Holiday initiatives again this year:
 - Pickering and Ajax Santa Claus parades – Nov. 24
 - City of Pickering's Annual Tree Lighting event – Nov. 30
 - Durham Regional Police Service (DRPS) Food and Toy Drive
 - Generating Change gate collections as employees arrive at work, an annual event to support local charities

Topic #5: Giving Tuesday, Ontario Nature and OPG

CAC member Dan Shire talked about Giving Tuesday, an organization that includes 150 membership groups across North America. Giving Tuesday is a global movement for giving and volunteering, taking place each year after Black Friday in the United States. The “opening day of the giving season,” it's a time when charities, companies and individuals join together and rally for causes

Dan is on the Board of Directors of Ontario Nature, which this Giving Tuesday is raising money for Protected Places that will provide safe havens for wildlife. The goal is for protected areas to cover 17 percent of the province.

This year, every dollar, up to \$15,000, that each donor gives to the Protected Places project will be matched by OPG.

On behalf of Ontario Nature, Dan acknowledged and thanked OPG for their support. More details at <https://givingtuesday.ca/partners/ontario-nature>.

Topic #6: Environmental Monitoring Performance Report

Raphael McCalla, Director Environment Operations Support, presented the 2017 results of OPG's Environmental Monitoring Programs for Pickering and Darlington (Appendix 3). He noted that the ultimate aim of the EMP is to determine: What is each site doing with respect to the environment, and what is the impact of their operations on the environment?

The key objectives of the Environmental Monitoring Programs are to:

- Demonstrate, independent of effluent monitoring, the effectiveness of containment and effluent control;
- Demonstrate compliance with limits on the concentration/intensity of contaminants/physical stressors in the environment;
- Provide data to assess the level of risk to human health and the environment and/or to confirm predictions made by environmental risk assessments.

Raphael presented maps indicating DN critical groups and sampling locations (rural resident; non-dairy farm; dairy farm) and PN critical groups and sampling locations (urban resident; industrial/commercial; correctional institution; dairy farm). To get a sense of level of exposure to radiation, members of critical groups were asked such questions as: Where do you work? Where do you buy your food products? Someone who works outside Pickering, for example, would get less exposure to radiation from the plant than someone who both lives and works in Pickering. In either case, the radiation dose from the plant would be very small.

Raphael presented a number of examples of radiation doses (e.g. typical chest x-ray, typical

cross-Canada flight, etc.) which are many times higher than the typical dose of living one year within a few kilometres of an operating nuclear plant in Canada (1 microsievert).

The 2017 EMP program summary:

- Annual public doses resulting from PN and DN operations were 1.8 microsieverts and 0.7 microsieverts respectively; these doses are 0.2% and 0.1% of the annual regulatory limit.
- Station radiological emissions were all below 1% of their respective Derived Release Limits. (DRLs for a given radionuclide are calculated by CNSC.)
- Dose calculation and annual report were reviewed and verified by an independent third party.
- The 2017 EMP report was submitted to the CNSC on April 20, 2018 and is now available on www.opg.com on June 19, 2018.

Regarding the higher annual public dose from Pickering compared to Darlington, Raphael noted that there are more reactors operating at Pickering and referred to the location of critical groups in the more urban setting of Pickering. However, both the PN and DN annual doses are very small numbers.

Raphael then talked about the 2017 public dose from each station in more detail and compared it to previous years. He showed data indicating that all radioactive emissions to air and water were below one percent of Derived Release Limits. As well, annual average concentrations of tritium at water supply plants near DN and PN were far below OPG's commitment of less than 100 becquerels per litre and the Ontario Drinking Water Quality Standard of 7,000 Bq/L.

The overall EMPs also encompass other monitoring programs that are reported separately:

Thermal Monitoring: Discharge of warm water through the condenser cooling water system has the potential to impact spawning success and larvae development of fish species. There is no indication of a warming trend which would approach the threshold in the near term.

Impingement and Entrainment Monitoring: Pickering deploys a Fish Diversion System annually to protect fish species from impingement during the taking in of cooling water. Performance of this system is communicated to the CNSC annually. The total biomass impinged in 2017 was 25,217 kilograms, or 4.99 kg/million m³ of station flow. This result was heavily influenced by a single event in November, during which a preliminary estimate of 24,000 kg of Alewife were impinged. In the absence of this event, impingement was 1,217 kg, the second lowest on record since assessment commenced in 2010.

Raphael noted that OPG has a fish species enhancement project in the Bay of Quinte to offset Fish Diversion System (FDS) impingement at Pickering, an initiative unique to OPG.

Forthcoming review/updates:

- Site Specific Survey Review (2018)
- Program Design Reviews (2018–2019)
- Implementation of PN and DN Derived Release Limits (2019)

Raphael responded to CAC questions:

- *Do you have any initiatives in place to address algae accumulating in the FDS?*
Yes, we have divers clean the net four times a week, which helps to control the situation.
- *Regarding the discharge of warm water from the plant, is there a thermocline effect that could interfere with fish spawning? (A thermocline is the transition layer in a body of water such as a lake between warmer water at the surface and cooler water below.)*
Fish in the lake near the plant tend to spawn above the thermocline and so are not affected by it.
- *Comparing public dose from the plant with normal exposure to radiation makes it less scary.*
Yes, it's a matter of public education. We try to put dose from the plant in context. It is extremely small compared to other commonplace exposures.

Topic #7: CNSC News

For selected news items from the CNSC, please see Appendix 4.

Next Meeting
Tuesday, January 15, 2019, 6 pm
Pickering Nuclear Information Centre
(supper available at 5:30 pm)