

**PNGS Community Advisory Council
and
DNGS Community Advisory Committee
Pickering Nuclear Information Centre
Meeting Minutes, June 20, 2017
Meeting Highlights**

Site Update

Randy Lockwood presented a Pickering Nuclear update on employee safety, plant productivity, human performance and environmental performance. There was also a report on a site visit of community relations people from Japan's Chubu Electric Company.

2016 Results of Pickering and Darlington EMPs

Cammie Cheng presented the results of the Pickering and Darlington Environmental Monitoring Programs. She noted that annual public doses of radiation from PN and DN operations were 0.2% and 0.1% respectively of the annual regulatory limit. The Council called for structuring the report to make it clearer to the public.

Information Update: Health Statistics in Durham Region

Mary-Anne Pietrusiak presented an update on health statistics in Durham Region, with a particular focus on the communities around the Darlington and Pickering nuclear stations. She noted that there is no evidence of the operation of the two plants having any effect on cancer rates or other health patterns in the Region.

Public Affairs

Carrie-Anne Atkins and Jennifer Knox tabled a community update for Pickering and Darlington (see Appendix 3).

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Pickering CAC:

John Earley
Donna Fabbro
Mary Gawen
Donald Hudson
Bill Houston
Tim Kellar
Greg Lymer
Pat Mattson
Sean McCullough
Cody Morrison (for Deborah Wylie)
Helen Shamsipour
Dan Shire
Ralph Sutton

Regrets:

Jim Dike
Keith Falconer
Dinesh Kumar
Zachary Moshonas
Moe Perera
Kira Shan

Darlington CAC:

Jim Boate
Mary Novak

OPG:

Carrie-Anne Atkins
Cammie Cheng
Jennifer Knox
Randy Lockwood
Glenn Pringle

Region of Durham:

Mary-Anne Pietrusiak

PDA:

Francis Gillis
John Vincett

Topic #1: Welcome Back

CAC Facilitator John Vincett welcomed Mary Gawen back to the CAC. Mary is an employee of Toronto and Region Conservation (TRCA) and is returning to the Council following her maternity leave. John expressed appreciation for the participation of her alternates, Maggie Ballantyne and Natalie Harder, during her leave of absence; he welcomed the idea that there are now a couple of alternate members from TRCA.

Topic #2: Review of Minutes

Council members called for the following changes to the May minutes:

- Topic #4, Site Update, first bullet point, second line: “andi” should be “and.”

- Topic #4, page 5, third bullet from top of page, last line: insert the words “management” and “activities,” so that sentence becomes: “Chris Johnston noted that OPG management stopped all lathing activities to talk to employees about the incident.”
- Topic #5, Public Affairs, page 6, fourth bullet, last line: Insert the phrase, “to that group,” so that the sentence reads: “John Vincett will be providing an update to that group on behalf of the CAC.”

Topic #3: Site Update

Site Vice President Randy Lockwood presented a site update:

- There have been no significant safety events since our May meeting.
- It has been 270 days since the last lost time accident.
- Unit 5 completed its outage and returned to service on June 4, on schedule.
- Unit 1 goes off line on August 20 and will return to service after a planned outage at the end of December.
- For the first time in many years, all six active units on site are operating at full power, an indication of improved performance. And performance continues to improve. Our teamwork has ensured that generation is ahead of target and our maintenance backlog has been cut in half.
- Year to date, human performance continues ahead of target.
- The site continues to have good overall environmental performance, but there was a 30–40 litre oil spill in May. OPG is taking steps to ensure such a spill does not happen again.
- North American Young Generation in Nuclear once again operated their “Clean Sweep” program. A group of 45 volunteers from the site helped 18 seniors with their spring yardwork on Saturday, June 10. This activity makes it more possible for seniors to remain in their homes as they get older. This work was well received. The weather was nice, and the volunteers enjoyed the day.
- Liz Sandals, President of the Treasury Board and MPP from Guelph, visited the plant. She was taken on a tour of the facility and has scheduled a follow-up visit.
- Preparations for the site's licence renewal hearing remain on track. The hearing will be at the end of August.
- The CNSC annual report card on Pickering Nuclear will be out soon. We have advance

information that the report is a positive one.

Carrie-Ann Atkins noted that, on May 29–30, Pickering Nuclear hosted a benchmarking visit from Japan's Chubu Electric Company. That company was particularly interested in the Pickering CAC. Carrie-Anne, Manager of Corporate Relations and Communications, whose office hosted the event, noted that John Vincett spoke to the visitors about the origins of the Community Advisory Council, its membership and how the group operates. The visitors were taken on a bus tour around the Pickering community. They visited the Pickering Museum and Windreach Farms as examples of OPG community partners. They heard about OPG funding of the museum and collaboration with Windreach Farms.

Carrie-Anne also noted that Donna McFarlane, a former Director of Public Affairs at OPG, spoke about OPG's tumultuous relations with the community in the late 1990s and how the company developed more open and successful communications with the public. She provided the visitors with the list of 160 issues developed by a public advisory group. Commenting on OPG proposals for addressing these issues was a major focus for the CAC for a number of years. Ultimately, all of the issues were addressed to the satisfaction of the Council.

Randy remarked that the visit from Japan was a good experience that OPG should probably do more of. The visitors were community relations people, not technical experts, and so the visit was unprecedented.

Randy and Carrie-Anne responded to Council questions:

- *What is the total number of people in Corporate Relations and Communications?*
Carrie-Anne: There are six in all.
- *Has all the rain and flooding in the area affected the plant?*
Randy: Not really. There was some lower level flooding in the intake screen area. And there has been some backup of storm drains during heavy rain.
- *Did the oil spill you referred to have anything to do with the weather?*
Randy: No, it was due to human error. The wrong valve was opened.
- *You mentioned steps were taken to prevent future spills.*
Randy: Yes, we have noted the lessons learned. In future, there will be a more thorough check of the backup system. The right valve should have been open and the floor drain should have been plugged.

Topic #4: 2016 Results of Pickering and Darlington EMPs

Environmental Advisor Cammie Cheng presented the results of the 2016 Pickering and Darlington Environmental Monitoring Programs (Appendix 1).

She reviewed:

- EMP objectives
- Results of non-radiological emissions monitoring (summarizes complete set of emissions for 2015)
- 2016 results of radiological emissions monitoring
- EMP critical groups and sampling locations
- Emissions to air and EMP data
- Tritium at municipal water supply plants near Darlington Nuclear and near Pickering Nuclear
- 2016 public dose

2016 Environmental Monitoring Results:

- 979 laboratory analyses performed for the 2016 dose calculation.
- Monitoring results in the environment reflect station emissions trends.
- 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 Bq/L and OPG's voluntary commitment of 100 Bq/L.
- In 2016, OPG conducted one supplementary study on tritium concentrations in Hydro Marsh water in support of the PN EMP. The study confirmed that tritium concentrations in Hydro Marsh are not statistically different from those in Frenchman's Bay. Therefore, for Environmental Risk Assessment purposes, it is not necessary to consider Hydro Marsh as a separate assessment location from Frenchman's Bay.

2016 Summary:

- Station radiological emissions were all below 2% of their respective Derived Release Limits.
- Annual public doses resulting from PN and DN operations were 1.5 microsieverts and 0.6 microsieverts respectively; that is, 0.2% and 0.1% of the annual regulatory limit.
- Dose calculations and annual report were reviewed and verified by an independent third party.
- 2016 EMP report was submitted to CNSC by April 30, 2017 and is now available at www.opg.com.

Looking ahead, Cammie referred to supplementary studies conducted as part of the 2017 EMPs. Direct gamma and skyshine dose from the Pickering Waste Management Facility (PWMF) will be measured on Lake Ontario. This study was last performed in 2000 and is being repeated to determine the current dose rate close to the PWMF.

There will also be review/updates to:

- Pickering Nuclear and Darlington Nuclear Derived Release Limits (DRLs) (2016–2017)
- DN Environmental Risk Assessment (2016–2017)
- PN Environmental Risk Assessment (2017)

A Derived Release Limit is a regulatory limit of a given radionuclide over a year based on public dose.

Cammie responded to Council comments and questions:

- *Does OPG need the regulator's permission to decide that monitoring Frenchman's Bay is adequate and that Hydro Marsh monitoring is not required?*

No, we can decide that on our own based on our Environmental Risk Assessment and the results from the completed supplementary study.

- *With respect to DRLs, if you change the standard of measurement between 2015 and 2016, how can you compare one year to the other? How do we know you aren't changing the DRLs that you are measuring against?*

The DRLs do not generally change one year to the next. The only times that DRLs are updated are:

- (α) when they undergo a review as required by the station operating licence – The DRL reviews are a requirement of the station operating licences in order to ensure that they are as representative of current conditions as possible by using updated meteorological data and critical group information. DRLs are calculated based on the Canadian Standards Association N288.1 standard that details the precise methodology to be used.
- (β) when the Canadian Standards Association N288.1 standard is revised – OPG is required to calculate DRLs using the precise methodology detailed in the CSA N288.1 standard. Occasionally, the CSA committee revises the N288.1 standard to introduce improvements to the methodology based on more advanced science or data. When a new version of the CSA N288.1 standard is published, OPG is required to update our DRLs to comply with it.

When DRLs are revised or planned for revision, we inform the public in the EMP report. For example, we have stated in the 2016 EMP report that the PN and DN DRLs compliant with the latest 2014 version of CSA N288.1 were calculated in 2016 and are undergoing review.

- *How often are emissions reported?*

Emission data are posted quarterly on opg.com. In addition, there is a range of other reporting activities to various agencies about specific items.

- *What's an official report?*

A report is official when it is sent to the regulator.

- *What are the current standards on which the EMP report is based?*

The PN and DN EMPs comply with the CSA standard N288.4 for environmental monitoring programs. It is a comprehensive document and different groups within my department are involved with various aspects. You can find it at <http://shop.csa.ca/en/canada/nuclear/n2884-10-r2015/inv/27008222010>. You can look at the Table of Contents and, if you have any specific questions, I would be happy to explain. If desired, we could have a subsequent presentation to explain the CSA N288.4 standard and how it guides the design and structure of the EMPs.

- *At the end of the day, it is probably most important to publish the report in a form that the average person can understand.*

That is the intent, as the EMP report is a public document available on opg.com. I would welcome everyone to have a read through it and offer any comments or suggestions for improvement. It may provide more detailed explanation of certain areas than in this presentation due to time restraints.

- *Are there limits on concentrations of emissions?*
For radiological emissions, the limits are not on concentrations but on public dose.
- *For Pickering, why the upswing in emissions in 2016?*
(Randy noted that one or two units had higher emissions in 2016. They were shut down for maintenance for much of the year.) (Maintenance activities can release a little more radiation.)
- *How are the emissions of tritium around the water supply plants near Darlington and Pickering measured?*
(Glenn Pringle said that tritium emissions are measured as their concentration in one litre of water.)
- *Do you measure background tritium?*
Yes, tritium is measured at provincial background locations in various environmental media (air, fruit, vegetables, milk, animal feed, eggs, poultry, fish).

General Council comments:

- *I understand that some values are best measured in microsieverts and others in millisieverts, but this makes the presentation difficult for the public to understand, as does the frequent use of acronyms.*
- *It would be more reassuring to the public to say at the beginning: emissions are less than 0.2% of the regulatory limit, which is already low.*
- *Focus on the concerns of people in the community, for example cancer and jobs. The report should answer those concerns and relieve their fears. So maybe the structure of the report needs to be totally different.*

Carrie-Anne noted that OPG does report to the public on those issues in an easy-to-follow pie chart, with the details available on line.

- *The average person is going to go on line, so OPG will need a simpler way of reporting on line as well.*
The annual EMP report, as well as quarterly emissions data, are posted on opg.com.
- *Does the weather affect what happens with emissions?*
Camie: Yes it can. The measurements from our detectors capture any affects the weather is having on the concentrations the public is exposed to.
- *There were questions regarding details related to the direct gamma and skyshine dose*

from the PWWF supplementary study.

Cammie: Once this study is completed, the results will be contained in the next EMP report and presented to the CAC.

Randy commented that OPG has made the report as consumer friendly as possible. However, it might be better to begin with a couple of slides with definitions of different terms and concepts. Also, the introductory slides could answer such questions as: what does this mean? and what are the take aways?

- *If there is a change from one year to the next, we need to know what it is and what it means.*
(Randy agreed.)
- *When standards change, you need to restate past data in current terms.*
- *You have a great story. Emissions at less than two percent of regulatory limit should be your headline.*

John remarked that the mix of calculated estimates and actual readings doesn't come through quite as clearly as in other years.

Summary of Council comments:

CAC members agreed that the EMP report is a comprehensive piece of work that pulls together a lot of information measuring the impact of the site on the community and on the environment. It is understood that the report is for a technical audience; but it is important that the general public can also understand the information presented. This communication needs a statement at the beginning that clearly indicates that the site is having a negligible effect upon the surrounding community, and that the emissions are significantly smaller than background radiation and are several orders of magnitude lower than emissions permitted through Derived Release Limits (DRLs).

Then have a sidebar explaining what a DRL is and how it is calculated.

OPG also provides data to other agencies as required by various provincial and federal regulations; but the EMP report pulls all the information together in one place for the primary regulator, the CNSC.

Conventional emissions are relatively well understood by the public and they are usually expressed as concentrations in air or in water. OPG emissions are all well within limits.

Radiation is a little more difficult to understand and involves a mix of actual readings taken in the field and on the site, along with a series of standard calculations as prescribed by the Canadian Standards Association to understand the dose received by specific receivers at specified points in the community that relate to potential exposure. This might include a dairy farm, where milking cows would receive a dose from eating the grass which could transfer to the milk, garden vegetables from a home near to the plant and, of course, for people living in

close proximity to the site. All of these calculations involve extra precautionary elements that tend to overestimate the actual dose received and all clearly are well below the threshold of concern for exposure.

Council members favour a simple statement in the presentation that is explanatory up front, and then a drill down into the information with greater detail. Currently, there is a need to develop that secondary level data so that it is also understandable to the general public. The subsequent level of detail is probably only of interest to regulators and other scientists who understand the structure within which the report is compiled.

CAC members are concerned that what is essentially a good news story is buried in the details and, because it is hard to understand, looks like a bad news story. This is especially important in the context of the new licence application, where clarity will be of great importance.

Topic #5: Information Update: Health Statistics in Durham Region

Mary-Anne Pietrusiak, Epidemiologist, Durham Region Health Department, presented an update on health statistics in the Region, with a particular focus on the communities around the Darlington and Pickering nuclear stations (Appendix 2).

Mary-Anne structured this evening's discussion on past presentations to the CAC and updates, noting that the reports referred to are on the website www.durham.ca/healthstats.

Radiation and Health 2007

This report examined rates of various cancers and congenital anomalies in Durham Region, focusing on the areas of Pickering-Ajax and Clarington specifically, and Durham Region generally with comparisons to Ontario. The overall conclusion was that rates of cancer, congenital anomalies and stillbirths in Ajax-Pickering and Clarington did not indicate a pattern to suggest that Pickering NGS and Darlington NGS were causing health effects in the population.

Study by Cancer Care Ontario

This study estimated cancer risks in relation to ambient tritium concentrations from routine operation of the Pickering nuclear station. The study found no evidence of a statistically significant association between tritium emissions and cancer risk.

Cancer at a Glance

This Health Department report examined cancer incidence (new cancers) in Durham Region:

- Trends from 1998 – 2012
- Compares Durham Region and Ontario 2010 – 2012

Mary-Anne presented a number of graphs from this report (see Appendix 2), looking at: the most common cancers in males and in females in Durham Region; all cancers in Durham

Region and Ontario; lung cancer in Durham Region and Ontario; and thyroid cancer in Durham Region and Ontario. She also presented a graph from a different report (Mortality at a Glance) on lung cancer mortality rates for females in Durham Region.

Trends and Comparisons: All cancers

Trend – Cancer decreasing in males (not significant in Durham Region) but increasing in females.

Comparison – Cancer higher in males than females. Durham Region significantly higher than Ontario for 2010 to 2012 in both males and females.

(Mary-Anne was asked: How does this comparison fit with the earlier statement that “The overall conclusion was that rates of cancer ... in Ajax-Pickering and Clarington did not indicate a pattern to suggest that Pickering NGS and Darlington NGS were causing health effects in the population.” She replied that the earlier statement and overall conclusion looks at all indicators together with information from the scientific literature and estimated dose from the plant, rather than one particular indicator on its own.)

Lung cancer

Trend – Lung cancer decreasing in males (not significant in Durham Region) but increasing in females. Mary-Anne noted that the rate of lung cancer is mostly related to smoking. Males stopped smoking earlier than females.

Comparison – Lung cancer higher in males than females but the gap is closing. Durham Region significantly higher than Ontario for 2010 to 2012 in females and similar in males.

Lung cancer mortality

Lung cancer mortality higher than breast cancer mortality in females and the gap is widening over time. Mary-Anne noted that the crossover was in the 1990s, but the good news is that the rate of smoking is going down, and eventually we will see female lung cancer decline. We just have not got there yet.

Mary-Anne remarked that the incidence of a given type of cancer depends a lot on how it is detected and how it is reported. Jennifer Knox, Facilitator of the Darlington CAC, noted that we tend to speak of “cancer” as a single disease, but it is actually a number of individual diseases; even within single categories of cancer, there are different diseases, often due to different causes.

Thyroid cancer

Trend – Thyroid cancer increasing in males and females in Durham Region and Ontario. The rapid increase in incidence is occurring worldwide and seems to be due to improved detection technology. Mary-Anne remarked that thyroid cancer is rarely fatal and sometimes quite benign.

Comparison – Thyroid cancer higher in females than males. Durham Region significantly higher than Ontario for 2010 to 2012 in females and similar in males.

Health Neighbourhoods

This project presents 82 indicators for 50 Health Neighbourhoods in Durham Region to better understand patterns of health in the Region's communities. The project includes

demographic, early childhood development and health indicators. Mary-Anne presented a series of charts and maps showing examples of health patterns in various health neighbourhoods in the Region (see Appendix 2). The Health Neighbourhoods information is available online at www.durham.ca/neighbourhoods.

In Conclusion

- Durham Region has a variety of statistics and reports that can inform us about the health status of various communities.
- Fall 2017 – Release 3.0 of Health Neighbourhoods with new indicators on domestic incidents and immunization, and 10 updated indicators that look at change over time.
- The Durham Region Health Department uses the information from the reports to plan and evaluate programs in the region.
- The department's community partners also make good use of the data.
- The Health Department is continuing to build the information and look for new ways to present the information in ways that are useful, understandable and accessible.

Mary-Anne responded to Council questions:

- *Why is the incidence of thyroid cancer increasing in Durham Region?*
My gut feeling is that Durham Region tends to have a higher rate of screening for thyroid cancer. That may be part of it.
- *Does the presence of the Pickering and Darlington plants make physicians more apt to test for thyroid cancer?*
I don't know. That is a very good question.
- *Why is thyroid cancer more prevalent in females?*
Females tend to go to physicians more. There may also be hormonal factors.
- *Are there any correlations in health patterns with political boundaries or census units?*
The Health Neighbourhoods are groupings of census units called Dissemination Areas. We created the boundaries of the neighbourhoods ourselves.
- *Have you looked at health patterns in relation to occupation?*
No, not specifically.
- *Do you compare Durham Region health patterns to jurisdictions outside Ontario?*
Typically, we compare the Region just to Ontario. Comparisons with jurisdictions outside Canada are much more difficult to make. The World Health Organization (and similar organizations) would make such comparisons at a national or maybe provincial level.
- *Your data shows that the better educated get better health outcomes. Are you communicating this information to school guidance counsellors?*
There is a huge push to get that message out. This is related to the social determinants of health where income and education can have a huge effect on your health. We do

work in the schools to share this information.

- *What is the relationship between marijuana use and lung cancer?*
We don't have a lot of information on that question. We do know that marijuana has some effects on the adolescent brain.
- *A summary of the health patterns in Pickering and Clarington should be published in the Neighbours Newsletter.*

Topic #6: Public Affairs

Carrie-Anne Atkins and Jennifer Knox tabled a community update for Pickering and Darlington (Appendix 3).

Topic #7: CNSC News

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

**Next Meeting of the Pickering CAC
Tuesday, September 19, 2017, 6 pm
Pickering Nuclear Information Centre
(supper available at 5:30 pm)**