



RNAO Submission to the Canadian Nuclear Safety Commission on the Application to Renew the License of the Pickering Nuclear Generating Station

May 7, 2018



The Registered Nurses' Association of Ontario (RNAO) is the professional association representing registered nurses (RN), nurse practitioners (NP) and nursing students in all settings and roles across Ontario. It is the strong, credible voice leading the nursing profession to influence and promote healthy public policy.

RNAO welcomes this opportunity offered by the Canadian Nuclear Safety Commission (CNSC) to respond to Ontario Power Generation's (OPG) application to renew its nuclear power reactor operating licence for the Pickering Nuclear Generating Station (Ref. 2018-H-03).¹ OPG is requesting the renewal of its licence from its current expiry date of August 31, 2018 for ten years. OPG plans to end commercial operations at Pickering by December 31, 2024. The issue matters a great deal to nurses because of its health implications and because they are heavily involved in any disaster responses (see the appendix). RNAO urges the CNSC to adopt a precautionary approach that prioritizes human health.

The Health Risk of Continuing to Operate Pickering

We note that under the Nuclear Safety and Control Act, the first object of the CNSC is to: "(a) to regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and prescribed information in order to (i) *prevent unreasonable risk*, to the environment and to the health and safety of persons, associated with that development, production, possession or use."²

This object is the focus of RNAO's submission.

Ontario has two multi-reactor nuclear stations right on the edge of the Greater Toronto Area (GTA) and its 6.6 million people – many of whom would be at risk of injury, poisoning and death if either of the two multi-reactor nuclear stations were to have a significant accident. Elsewhere, nuclear power plants tend to be located in lightly populated areas; Japan was very fortunate that its Fukushima nuclear disaster happened in a comparatively sparsely populated area.

The Pickering plant is just 5 km east of Toronto and the Darlington plant is 30 km east.³ There were only 160,000 people evacuated as a result of Japan's Fukushima disaster, even though there was a 20 km evacuation order and voluntary evacuation in the area 20-30 km from the plant.⁴ As of 2006, a 20 km evacuation alone around the Pickering plant would affect 1.3 million people.⁵ Many of those people would face exposure before they are able to evacuate. 2.2 million GTA residents would be affected by a 30 km evacuation.⁶ As the GTA population continues to grow, so will the numbers of people at risk in the event of a nuclear accident.

The effects of an accident extend far beyond the immediate and long-term effects of exposures to radiation. Much of the adverse impact of Fukushima was due to the evacuation of vulnerable communities from hospitals and nursing homes. The World Nuclear Association cited over 1,000 deaths directly attributable to the evacuation around Fukushima.⁷ This is a risk for any kind of evacuation, as was the case with Hurricanes Katrina and Rita.⁸ And vulnerable or not, living as a refugee for an extended period of time raises the risk of death.⁹

Furthermore, a Pickering nuclear accident would compromise drinking water. At the very least, a Pickering disaster could compromise the drinking water from Lake Ontario -- and that is the source of drinking water on both sides of the border. Accordingly, there must be planning for immediate and on-going health services to mitigate those risks.

Emergency Preparedness

With the health of so many people at stake, and having witnessed how wrong things can go when accidents happen as they did at Chernobyl and Fukushima, a precautionary approach is called for – so long as Ontario continues to run its nuclear reactors. RNAO welcomes Toronto's requests to the province of Ontario and to the CNSC to strengthen Ontario's nuclear emergency preparedness.^{10 11} **RNAO calls on the CNSC to ensure that, for all nuclear power plants in Canada, all nuclear emergency preparedness measures are world class and are designed to meet the need imposed by a Fukushima-scale disaster.** For a detailed elaboration of this recommendation, see the recommendation on Ontario's Provincial Nuclear Emergency Response Plan (PNERP) in the appendix.

The Renewal of the Pickering Licence

Given that:

- the risks of a disaster at an aging nuclear plant are not diminishing,
- Pickering continues to produce dangerous nuclear waste which must be stored in perpetuity,
- costs to keep Pickering running so far past its designed life span (designed in 1971 to last until 2001)¹² are unknown but likely to be high in light of recent costs, which were double Ontario's wholesale electricity price¹³
- as the Environmental Commissioner of Ontario (ECO) noted, Ontario had " made a heavy commitment to nuclear while largely abandoning renewables. Nuclear power may not be cheaper than renewables over the long run."¹⁴

In the view of the ECO, "The GHG reduction benefits may justify continued operation of Pickering even at the price of higher electricity system costs, but if so, the government should explain why the Pickering extension is the most cost-effective way to reduce GHG emissions. If the government decides to go ahead with Pickering instead of making better use of the renewable power we already pay for, reducing peak demand, encouraging new renewables and importing only the extra power that Ontario needs, Ontarians have a right to know why."¹⁵

RNAO asks whether the power from Pickering is even necessary, and if so, whether some or all of it is necessary until 2024. Moreover, if some of the power is needed, we ask whether it can be justified on an economic basis, when including the costs of maintenance and repair, and of adequate nuclear emergency preparedness. There are renewable and conservation alternatives, as the ECO noted. Most importantly, we ask the CNSC: does it make sense to continue to operate an aging nuclear plant adjacent to a large and growing population, when the expiry of the current, much-extended licence would solve that problem? RNAO urges a precautionary, health-based approach to the CNSC review, and urges that all energy planning to prioritize safer renewable alternatives.

Appendix

The role of RNs and NPs in nuclear disasters

Health services are central to disaster mitigation and emergency response, and RNs and NPs are in the front lines when any disaster does strike. RNs and NPs play key roles in responses to nuclear incidents including: radiation exposure screening; triage; decontamination; treatment for radiation; treatment for exacerbations of existing medical conditions; assistance with evacuation; and attending to the health and psychological needs of evacuees. Problems during the Fukushima nuclear disaster demonstrated the need for authorities to ensure adequate supports are in place for nurses in the event of emergencies. That includes ongoing work to provide RNs and NPs with the necessary training and materials.¹⁶ Inadequate preparation at Fukushima also contributed to: deaths of vulnerable people due to rapid evacuation; deaths due to displacement of elderly people requiring nursing care; and adverse impacts on affected individuals' lifestyle and mental health.¹⁷ This is reminiscent of how the 2003 SARS outbreak revealed Ontario's lack of preparation for public health emergencies.¹⁸

It is crucial to have comprehensive planning so that RNs and NPs can be ready for all the above roles. Furthermore, they must be involved in the detailed planning processes. Planning must identify and commit all necessary resources, including: key hospitals and other health facilities; decontamination centres; equipment; materials; and personnel. To ensure resources can be rapidly mobilized in the event of a disaster, it is essential that personnel likely to be involved receive appropriate and adequate training. For example, public health, primary care, long term care, and acute care nurses must learn to identify vulnerable populations in the shadow of nuclear plants. Nurses trained to screen for acute radiation syndrome can identify people with the highest priority for treatment. Nurses will also need to know how to best decontaminate exposure victims, how to handle contaminated clothes and water, how to treat and cover wounds, and how to protect food and water from radiation.

RNAO's Recommendations to Ontario on its Nuclear Response Plan

As noted above, Toronto has called on the province to greatly enhance nuclear preparedness standards. In doing so, it joined other municipalities: Durham Region, Ajax, Windsor, Amherstburg, Essex County and Brockton.¹⁹

RNAO, as a signatory of *A Call for Public Safety: Addressing Nuclear Risks on the Great Lakes*,²⁰ made the following recommendations to the province on its submission on the PNERP:²¹

1. Base protective measures on a Fukushima-scale accident (International Nuclear Event Scale 7 (INES 7)), including alerts, potassium iodide pre-distribution and preparation for evacuation zones of 20 km or greater.
2. Prepare for full health support of all displaced populations, including health practitioner staffing at evacuation centres and health teams to visit reception centres without health teams.
3. Ensure on-going emergency training of key health care providers in primary and acute care, long-term care and public health, including RNs and NPs.

4. Ensure all necessary policies, procedures and documentation are in place to support health professionals in the event of a significant nuclear incident.
5. Identify vulnerable groups within 30 km of nuclear facilities and require plans to assist those groups, whether they are evacuated or not.
6. Ensure alternate sources of drinking water are identified and available, given the possibility of contamination of Great Lakes water.
7. With respect to transparency and public participation, require the public availability of detailed information on nuclear emergency planning, and require five-year reviews and detailed public consultation on emergency response planning.
8. Require emergency response measures to meet or exceed international best practices.
9. “Regularly review and publicly report on international developments and best practices in offsite nuclear emergency planning as well as on plans to adjust and improve Ontario’s plan to meet or exceed the best practices in other OECD jurisdictions.”²²

In its submission to Toronto, RNAO made the following recommendation:²³

Urge the province to enhance its nuclear emergency response plan so that is capable of dealing with a Fukushima-level accident (International Nuclear Event Scale 7 (INES 7). That includes: preparing full health support for displaced populations; ensuring on-going emergency training of key health care providers; providing support for health professionals in the event of a disaster; and preparation for prompt delivery of potassium iodide (KI) pills beyond a 10-kilometer radius around nuclear reactors.

RNAO will support any effort for a strong precautionary approach nuclear disaster preparedness for Toronto and Ontario, and will follow the entire process to its conclusion.

¹Canadian Nuclear Safety Commission. (2017). *Notice of Public Hearing and Participant Funding*. September 29. <http://nuclearsafety.gc.ca/eng/the-commission/pdf/NoticePublicHearingPFP-2018-H-03-OPG-Pickering-e.pdf>.

² Government of Canada. (1997). *Nuclear Safety and Control Act (S.C. 1997, c.9), Objects*. <http://laws-lois.justice.gc.ca/eng/acts/N-28.3/page-2.html#h-7>.

³ Otis, D. (2016). Safety Not guaranteed near nuclear plants in Pickering and Clarington, critics say. *DurhamRegion.com*. January 26. <https://www.durhamregion.com/news-story/6218718-safety-not-guaranteed-near-nuclear-plants-in-pickering-and-clarington-critics-say/>.

⁴ World Nuclear Association. (2017). *Fukushima Accident*. <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.

⁵ Centre for Spatial Economics. (2011). *Economic Impacts of a Nuclear Accident at the Pickering or Darlington Nuclear Stations*. Prepared for Greenpeace Canada. September. <http://www.greenpeace.org/canada/Global/canada/report/2011/09/Accident%20impact.pdf>.

⁶ Declan Butler. (2011), Reactors, residents and risk. *Nature News*, April 21. <http://www.nature.com/news/2011/110421/full/472400a.html>.

⁷ World Nuclear Association. (2017). *Fukushima Accident*. <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/fukushima-accident.aspx>.

⁸ Freya Zork, Nursing Home Disaster Planning and Response: A Policy Perspective, *Journal of Gerontological Nursing*, Vol.40, No.12, 2014.

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- ⁹ Tanaka R., Prolonged Living as a Refugee from the Area Around a Stricken Nuclear Power Plant Increases the Risk of Death. *Prehospital and Disaster Medicine*, August 2015, Vol 30, Issue 4, pgs. 425-430.
- ¹⁰ Toronto City Council. (2017). *EX28.13. Toronto, Emergency Management Program and Revisions to the Toronto Municipal Code*. November 7-9. <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.EX28.13>.
- ¹¹ Toronto City Council. (2018). *EX33.6. Emergency Management Program Update -- 2017*. April 24. <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2018.EX33.6>.
- ¹² Ontario Clean Air Alliance. (2016). *Closing the Pickering Nuclear Station in 2018*. p. 1. Citing Ontario Power Generation, Annual Information Form For The Year Ended December 31, 2000 , (April 30, 2001), Page 36.
- ¹³ Ontario Clean Air Alliance. (2016). *Closing the Pickering Nuclear Station in 2018*. p. 3. <http://www.cleanairalliance.org/wp-content/uploads/2016/06/pickering-fs.pdf>. Citing Ontario Energy Board Docket No. EB-2013-0321, Exhibit JT1.14 (Refiled: 2014-06-03). and www.ieso.ca/Pages/Power-Data/price.aspx.
- ¹⁴ Environmental Commissioner of Ontario. (2018). *Making Connections: Straight Talk about Electricity in Ontario*. p. 9. <http://docs.assets.eco.on.ca/reports/energy/2018/Making-Connections.pdf>.
- ¹⁵ Ibid, pp. 223-224.
- ¹⁶ Yoshida, K., Orita, M., Goto, A., Kumagai, A., Yasui, K. et al. (2016). Radiation-related anxiety among public health nurses in the Fukushima Prefecture after the accident at the Fukushima Daiichi Nuclear Power Station: a cross-sectional study. *BMJ Open* 2016;6: e013564. doi:10.1136/bmjopen-2016-013564.
- ¹⁷ Hasegawa, A., Ohira, T., Maeda, M., Yasumura, S, and Tanigawa, K. (2016). Emergency Responses and Health Consequences after the Fukushima Accident; Evacuation and Relocation. *Clinical Oncology*. 28 (2016), pp. 237-244. <http://www.sciencedirect.com/science/article/pii/S0936655516000054>.
- ¹⁸ Registered Nurses' Association of Ontario. (2003). *SARS Unmasked: A Report on the Nursing Experience with SARS in Ontario*. September 29. http://rnao.ca/sites/rnao-ca/files/SARS_Unmasked.pdf.
- ¹⁹ Canadian Environmental Law Association. (2017). *Comments on EX28.13: Toronto's Emergency Management Program and Revisions to the Toronto Municipal Code*. <http://www.toronto.ca/legdocs/mmis/2017/ex/comm/communicationfile-72979.pdf>.
- ²⁰ Canadian Environmental Law Association et al. (2017). Op. cit.
- ²¹ Registered Nurses' Association of Ontario. (2017). *RNAO Submission on the Provincial Nuclear Emergency Response Plan (PNERP)*. July 28. http://rnao.ca/sites/rnao-ca/files/RNAO_PNERP_submission_final.pdf.
- ²² Canadian Environmental Law Association et al. (2017). Op. cit. p. 7.
- ²³ Registered Nurses' Association of Ontario. (2017). *RNAO Submission on Toronto's Emergency Management Program and Revisions to Toronto Municipal Code*. October 23. http://rnao.ca/sites/rnao-ca/files/RNAO_Submission_on_Toronto_Emergency_Management_Program_-_Oct_23_2017.pdf.