



Oral presentation

Exposé oral

**Written submission from
Nordion (Canada) Inc.**

**Mémoire de
Nordion (Canada) Inc.**

In the Matter of the

À l'égard d'

Ontario Power Generation Inc.

Ontario Power Generation Inc.

Application to extend the operation of
Pickering Nuclear Generating Station
Units 5 to 8 until December 31, 2026

Demande visant à prolonger l'exploitation
des tranches 5 à 8 de la centrale nucléaire de
Pickering jusqu'au 31 décembre 2026

Commission Public Hearing

Audience publique de la Commission

June 2024

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Intervention for Ontario Power Generation's (OPG) License Request for Authorization to Operate Pickering Nuclear Generating Station (NGS) Units 5 to 8 Beyond December 31, 2024

April 29, 2024

This written intervention is delivered on behalf of Nordion (Canada) Inc., a Sotera Health company based in Ottawa. Nordion fully supports Ontario Power Generation's request to extend the operation of Pickering Nuclear Generating Station (NGS) Units 5 to 8 until December 31, 2026. In partnership with Nordion, the Pickering NGS has been safely producing Cobalt-60 in these units for over 50 years. Cobalt-60 is a critical isotope to the healthcare sector and an operation extension will ensure that a stable supply of Cobalt-60 continues in a manner that protects both people and the environment. Nordion is the leading global provider of Cobalt-60 and is in a unique position to provide insight into the Cobalt-60 industry and supply chain and speak to the importance of Cobalt-60 production at Pickering. In addition to this written intervention, Nordion requests the opportunity to deliver an oral presentation.

OPG at Pickering has been safely supplying Cobalt-60 to Nordion since 1971. Nordion obtains our Cobalt-60 from a variety of sources, through collaborations with OPG and other nuclear power operators. These partnerships are essential to our ability to deliver Cobalt-60 sources to our customers for the sterilization of single-use medical devices and other healthcare products, the irradiation of food and spices, and the delivery of cancer treatment. Our partnership with OPG at Pickering allows us to contribute every day to the health and wellbeing of millions of people in Ontario, Canada, and around the world.

Cobalt-60 is a critical component of the healthcare supply chain. It is used to sterilize more than 30% of all single-use medical devices globally, and more than 40% in the U.S., accounting for roughly 16 billion devices annually. In fact, some products can only be sterilized with Cobalt-60 due to their design or materials. Products sterilized with Cobalt-60 are used in a wide variety of medical procedures, including orthopedic surgery, cardiovascular procedures, and invasive diagnostic procedures (e.g. endoscopy, biopsy). Cobalt-60

was also widely employed in the COVID vaccine supply chain for the sterilization of both vaccine-related products, such as vial stoppers and closures, and single-use technology bioprocessing equipment, used in vaccine research development and manufacturing processes.

Sterilization with Cobalt-60, known as “gamma processing,” is a simple, safe, reliable, and cost-effective method with a history of over 70 years. OPG’s existing expertise on how to produce, package, transport, manage, and store Cobalt-60 is indispensable and cannot be easily replicated at other locations. Canadian sources of Cobalt-60, including those produced at OPG, supply more than 50 percent of the world’s Cobalt-60. This Canadian technology has had and continues to have a positive impact on the lives of millions of patients around the world.

Cobalt-60 is mostly known for its use in gamma sterilization, but it also plays a vital role in cancer treatment. Stereotactic radiosurgery technology is used to deliver precise doses of radiation towards a specific coordinate, targeting a tumour or other abnormality in the body while minimizing impact on healthy tissue. Nordion’s partner Elekta, for example, created the Gamma Knife[®], which provides a non-invasive treatment for brain cancers and other brain diseases. There are approximately 700 Gamma Knife and similar machines worldwide, including 6 in Canada, which deliver treatment to more than 30,000 patients a year. We are also partners with a company called Xcision, whose device the GammaPod™ is the world’s first stereotactic radiotherapy system optimized for treating breast cancer. Extending the operation of Pickering NGS Units 5 to 8 would help support medical innovation in our collective fight against cancer.

Although alternative technologies for medical device sterilization exist, they each have drawbacks that can make them less appealing than gamma. More importantly, switching between technologies is burdensome and costly for the medical device manufacturer, and could take many years to implement due to stringent regulatory requirements. As such, if there was a sudden reduction in the availability of Cobalt-60, much of the healthcare infrastructure we have come to rely on would be put at risk.

In fact, global demand for Cobalt-60 has been steadily growing at a rate of 5% per year as a result of population growth, aging demographics, advances in medical technologies, and improved access to healthcare in emerging markets. There are a limited number of reactors around the world that can produce Cobalt-60, and the development of new sources of Cobalt-60 production takes many years, is capital intensive, and can involve foreign governments and reactor operators whose commercial and operational philosophies are not as well aligned as those of a Canadian operator. As a result, maintaining Cobalt-60 supply in Canada is a priority. It allows us to take advantage of the industry-leading gamma expertise developed in Canada over the last 70 years, as well as OPG's existing expertise on Cobalt-60 production, management, and transportation.

Nordion has been fully aware of the initial licence restrictions at Pickering with respect to operation of Units 5 to 8 beyond December 31, 2024. Accordingly, our inventory management team has planned out decades in advance and identified the potential Pickering shut-down as a gap in Ontario-based supply. Although Nordion has been working to minimize the impact of this potential decrease on Canadian Cobalt-60 supply, it would still result in reduced supply at a time of critical need given the ongoing importance of Cobalt-60 to healthcare and the geopolitical challenges to Cobalt-60 supply from outside North America. The extension of operations of the Pickering unit will play a key role in ensuring that Cobalt-60 supply remains stable for the health care industry.

Additionally, keeping Cobalt-60 supply local reduces transportation emissions, aligning with our combined goal of reducing greenhouse gas emissions. Having a partner like OPG who is geographically close to our production facility and can produce Cobalt-60 in multiple units drives efficiencies that can be found in few other places. The transportation of radioactive material is, as you can imagine, costly and complex. Obtaining resources from a Canadian reactor that operates under the same world class regulatory regime as us provides confidence in safety and security, as evidenced by OPG's impeccable transportation record.

Finally, extending OPG's license at their Pickering location allows for increased Canadian Cobalt-60 supply that then minimizes our reliance on foreign providers such as Russia to fulfill demand. Due to recent global events, the Russian Cobalt-60 supply chain has become more prone to geopolitical risks, making it within Canada's best interests to invest in the Canadian Cobalt-60 supply chain to ensure continued supply volume.

Today, Cobalt-60 from OPG is processed by Nordion into sealed sources at our facility in Ottawa and then shipped to more than 120 gamma processing facilities in over 40 countries around the world. Our business directly supports more than 150 highly skilled employees including scientists, engineers, and technicians in Ontario. OPG and its Pickering units are important to maintaining this unique set of capabilities and positioning Canada as a global leader in the gamma processing industry.

In closing, extending operations at OPG's Pickering Nuclear Generating Station will make an enormous impact on the health and wellbeing of people in our local community, in Canada, and around the world through the continued production of Cobalt-60. This radioisotope is a critical resource within the healthcare space, and maintaining current supply is a priority—especially when the project is associated with local experts like OPG, who have a proven track record of ensuring the safety of people and the environment while producing this critical isotope.