



**Written submission from the  
International Irradiation Association**

**Mémoire de  
l'International Irradiation Association**

In the Matter of

À l'égard d'

**Ontario Power Generation**

---

**Ontario Power Generation**

---

**Ontario Power Generation – Licence  
amendment application for the Darlington  
Nuclear Generating Station regarding the  
commercial production of Cobalt-60**

**Ontario Power Generation – Demande  
concernant la modification de son permis  
pour la centrale nucléaire de Darlington en  
vue de produire commercialement du  
Cobalt-60**

Public Hearing – Hearing in writing based on  
written submissions

Audience publique – Audience fondée sur des  
mémoires

**Spring 2024**

**Printemps 2024**



To the Canadian Nuclear Safety Commission

30<sup>th</sup> January 2024

**Comments on Application from Ontario Power Generation - Licence amendment for the Darlington Nuclear Generating Station regarding the commercial production of cobalt-60**

**Hearing Notice Number: 2024-H-101**

**Hearing Date: 24-04-22**

I am the General Manager of Gamma Irradiation at the International Irradiation Association (iia) and a subject matter expert on the cobalt-60 (Co-60) and gamma irradiation markets. The iia is a not-for-profit organization that supports the safe and beneficial uses of irradiation and has a diverse global membership that includes corporations and research institutes that apply irradiation. This includes gamma irradiation using the cobalt-60 that is manufactured in a small number of nuclear power reactors. The iia wishes to make the following comments regarding the application made by Ontario Power Generation:

**Comments:**

1. The largest application of gamma irradiation using cobalt-60 is the sterilization of medical devices by the healthcare industry in order to reduce the risk of patient infection. A patient in surgery or receiving wound care or simply having a blood sample taken, is highly likely to be treated using product that has been sterilized using cobalt-60. Globally, it is estimated that 30-40% of medical devices are sterilized using cobalt-60. In the US alone, approximately 40% of medical devices are sterilized using cobalt-60, equivalent to approximately 16 billion devices per year.
2. Other important uses of cobalt-60 include the non-invasive treatment of cancers and brain tumours, polymer processing, food treatment and environmental applications.
3. The demand for sterilization, and therefore cobalt-60 is growing at rates not previously seen. This is due to an increasing and aging population, greater access to healthcare globally, and the development of new medical devices that require sterilization.
4. The supply of cobalt-60 is currently not able to grow at a rate that enables industry to meet this additional demand. This is due to the very small number of nuclear reactors that are able to produce cobalt-60. This issue is well understood and of great concern to the healthcare industry.



5. Whilst alternative sterilization technologies are available, a combination of their effect on medical device materials, supply chain, regulatory and existing capacity challenges means that these technologies are also not able to meet the growing need for sterilization. Therefore, gamma irradiation using cobalt-60 will continue to be required for the long term.
6. The Darlington Nuclear Generating Station (DNFS) operates CANDU type reactors. These CANDU type reactors are well established for cobalt-60 production. However, the number of CANDU reactors globally is very small (~30 reactors in operation) and therefore the opportunities to increase cobalt-60 production are very limited.
7. The authorization of commercial cobalt-60 production at DNFS would be a great contribution to meeting the growing demand for sterile medical devices that keep the global population safe and healthy.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Martin Comben'.

Martin Comben  
General Manager – Gamma Irradiation  
International Irradiation Association

E: [mcomben@iiaglobal.com](mailto:mcomben@iiaglobal.com)

W: <https://iiaglobal.com/>