



**Written submission from the
Mississaugas of Scugog Island
First Nation**

**Mémoire de la
Première Nation des Mississaugas
de Scugog Island**

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
commerciallement du Cobalt-60**

Public Hearing – Hearing in writing based on
written submissions

Audience publique – Audience fondée sur
des mémoires

Spring 2024

Printemps 2024



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Comment Submission: Ontario Power Generation (OPG)-Darlington Nuclear Generating Station (DNGS)

Licence amendment of the Power Reactor Operating
Licence to produce Cobalt-60



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Mississaugas of Scugog Island First Nation
Consultation Office

April 5, 2024



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To the attention of:

The Canadian Nuclear Safety Commission (CNSC)

Via email: interventions@cnsccsn.gc.ca

Re: Ontario Power Generation - Licence amendment application for the Darlington Nuclear Generating Station regarding the commercial production of cobalt-60

Thank you for the opportunity to comment on OPG's licence amendment application for the Darlington Nuclear Generating Station regarding the commercial production of cobalt-60. Comments on behalf of the Mississaugas of Scugog Island First Nation (MSIFN) are below.

Background

On April 28, 2023, Ontario Power Generation (OPG) requested from the Canadian Nuclear Safety Commission (CNSC) a licence amendment of the Darlington Nuclear Generating Station (DNGS) Power Reactor Operating Licence (PROL) 13.03/2025 in order to produce the radioisotope Cobalt-60 (Co-60) in the reactor core. OPG requested the Commission to amend the Darlington PROL 13.03/2025 to add a new licensed activity to possess, transfer, produce, package, manage and store the Co-60 radioisotope.

OPG plans to utilize all four of DNGS' reactors for the irradiation of Cobalt-59 (Co-59) rods to produce Co-60. Co-60 production will overlap with Molybdenum-99 (Mo-99) production in Darlington NGS Unit 2. OPG's construction window for the Co-60 Production Modifications Project is planned between 2022 and 2027, and plans for all unit modification and installation are during refurbishment or planned outages.

The Co-60 radioisotope planned to be produced at Darlington NGS will be shipped to Nordion's facility in Kanata, Ontario where it is commercialized and sold to market, similar to the arrangement for Co-60 produced at Pickering NGS. OPG will be responsible for Co-60 production activities at the DNGS site as follows:

- Receipt and storage of Co-59 rods,
- Irradiation of Co-59 rods in Darlington NGS's reactors, and
- Harvesting of the irradiated rods from the reactor core and on-site processing.



Rationale

OPG has been producing the Co-60 radioisotope in Pickering NGS's CANDU reactors for decades, providing a significant portion of the worldwide production (15-20%). With Pickering NGS's (PNGS) eventual end of commercial operation and/or refurbishment, OPG anticipates there will be a supply gap. The Co-60 Production Modifications Project at Darlington NGS provides OPG an opportunity to maintain long-term supply of Co-60 and continue to be a major contributor of the global supply of the radioisotope.

Comments from MSIFN

Table 1. Comments on OPG's Licence Amendment

#	Comment
1	MSIFN Consultation acknowledges that Co-60 is an essential radioisotope used in the medical and food industries, and that OPG makes a significant contribution – 15-20% - of the global supply. The loss of OPG's production may result in a global supply gap, and a Canadian supply gap, resulting in health, safety and social concerns.
2	MSIFN Consultation appreciates the "Land Acknowledgement" contained in the introductory section of Attachment 3.
3	<p>MSIFN Consultation acknowledges that OPG has significant experience with the production of Co-60 at PNGS, with established work practices that can be applied at DNGS. OPG says:</p> <ul style="list-style-type: none"> - It will continue to follow its established Engineering Change Control process for ensuring the design complies with applicable regulatory requirements and that configuration management for the station will be maintained; - It will make modifications to the DNGS for Co-60 production on all four units to include: conversion of non-cobalt adjuster rods to inactive Co-59 adjuster rods, addition of equipment and tooling to facilitate installation of Co-59 adjuster rods, safe removal of the irradiated Co-60 rods during planned outages, and modifications for discharging, storing and processing adjuster elements in the Wet Cask Handling Bay of the Irradiated Fuel Bay (IFB) in the West Fueling Facilities Auxiliary Area; - It has completed a safety analysis that concludes that the addition of this new licensed activity will have negligible effect on safe reactor operation, and on public safety; - It has assessed the effects of having the Co-60 and Mo-99 production systems in the same operating unit at Darlington, and that due to both systems being spatially and



#	Comment
	<p>temporally independent from each other, their combined effect is no greater than their individual effects;</p> <ul style="list-style-type: none"> - Its Predictive Effects Assessment (PEA) concludes that operation of the Co-60 production system will not result in any unacceptable risks to human and ecological receptors residing in the vicinity of the Darlington NGS site, and that the additional emissions of the Co-60 and Mo-99 production systems are a small fraction of existing Darlington NGS emissions and the predicted doses are well below regulatory limits; - There will be no programmatic changes required to the Nuclear Management System or any other programmatic changes to documents listed in the current Darlington NGS PROL 13.03/2025 and the associated Licence Conditions Handbook; and - The production of Co-60 does not involve nuclear material that is subject to safeguard requirements pursuant to the Canada/International Atomic Energy Agency (IAEA) Safeguards Agreement (Uranium, Thorium or Plutonium) and as defined in REGDOC-2.13.1, “Safeguards and Nuclear Material Accountancy”.
4	<p>MSIFN Consultation acknowledges OPG’s statement: “Under its Indigenous Relations Policy, OPG regularly engages with Indigenous Nations and communities with established or asserted rights and/or interests in the areas surrounding OPG operations. As part of its engagement plan, OPG has planned updates/meetings with the identified Indigenous Nations and communities, leading up to the licensing hearing to further discuss the project... OPG is prepared to provide capacity support to the engaged Indigenous Nations and communities, in line with the Indigenous Relations Policy and the scope of the engagement required.”</p>
5	<p>MSIFN Consultation has reviewed the “Licence Amendment Matrix - Nuclear Safety and Control Act and Applicable Regulations” Attachment 2 to the application. MSIFN Consultation is generally satisfied with OPG’s responses to the CNSC. With regard to security arrangements, MSIFN Consultation supports Bill C-21’s proposed security-related changes to the Nuclear Safety and Control Act to give security personnel the authority to carry out limited peace officer function at nuclear facilities. We request that OPG comment on its position on this provision in Bill C-21, and further comment on how the adoption of this provision may impact – positively or negatively – security with respect to this application and Section 3.12 of Attachment 3.</p>



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#	Comment
6	MSIFN Consultation will present its findings to MSIFN Chief and Council for their review and discussion, and recommend that MSIFN provide provisional support for the application pending the above clarification on the potential passing of Bill C-21 and the adoption of the proposed security-related changes to the Nuclear Safety and Control Act to give security personnel the authority to carry out limited peace officer function at nuclear facilities.

Sincerely,

MSIFN Consultation Office

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