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Written submission from the Canadian Nuclear Workers'Council

Mémoire du Conseil canadien des Travailleurs du Nucléaire

In the Matter of

À l'égard de

Application for a licence amendment to authorize activities related to the production and possession of Molybdenum-99 (Mo-99) at the Darlington Nuclear Generating Station (NGS)

Demande de modification de permis en vue d'obtenir l'autorisation de produire du molybdène 99 (Mo-99) à la centrale nucléaire de Darlington

Public Hearing - Hearing in writing based on written submissions

Audience Publique - Audience fondée sur des mémoires

September 2021

Septembre 2021

Canada

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August 18, 2021

Members of the Commission
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Reference 2021-H107

CNWC Submission regarding the Application from Ontario Power Generation for an amendment to Power Reactor Operating Licence 13.02/2025 to authorize the production of Molybdenum-99 at the Darlington Nuclear Generating Station,

Dear President Velshi and Members of the Commission,

The Canadian Nuclear Workers' Council (CNWC) supports the application from Ontario Power Generation (OPG) for an amendment to Power Reactor Operating Licence (PROL) 13.02/2025 which will allow the production of Molybdenum-99 (Mo-99) at the Darlington Nuclear Generating Station (DNGS), reference CMD: 21-H107.1.

Please accept this letter as our written submission for the CNSC hearing scheduled for 23 September 2021.

The Canadian Nuclear Workers' Council

The CNWC was formed in 1993 as an association of Unions representing Workers across Canada's nuclear industry. Our Membership encompasses uranium mines and mills, nuclear fuel production, nuclear power plant (NPP) operation and maintenance, engineering, NPP construction and refurbishment, medical isotope production, nuclear research and development, nuclear waste handling and decommissioning. Our Membership also includes District Labour Councils in a number of host communities.

*The CNWC is a Member of the Canadian Nuclear Isotope Council (CNIC).

Specific to this submission:

CNWC Member Unions at OPG's DNGS include the Power Workers' Union (PWU), the Society of United Professionals (the Society) and Members of the Provincial Building and Construction Trades Council of Ontario. The Durham Region Labour Council is also a Member of the CNWC.

In addition to OPG, the Mo-99 Project has a number of other project partners. The project is being coordinated by Laurentis Energy Partners with participation from BWX Technologies (BWXT) Canada, BWXT Nuclear Energy Canada (NEC), BWXT Medical and Kinectrics. Other CNWC Member Unions involved in the project include the United Steel Workers (USW) at BWXT Canada in Cambridge, Unifor and IFPTE at BWXT NEC in Peterborough, and the Society and PWU at Kinectrics in Toronto.

The goals of the CNWC are to:

- ensure the perspectives of Canada's Nuclear Workers are heard by decision makers,
- strengthen the collective role of Nuclear Workers via their Unions as partners in Canada's Nuclear Industries, and
- enhance public knowledge about the many benefits of Canada's Nuclear Industry.

The CNWC is a regular participant in the regulatory process for Canada's nuclear industry.

The CNWC has reviewed OPG's application, CMD: 21-H107.1, and CNSC Staff's assessment of that application, CMD: 21-H107. We also contacted our Member Unions at DNGS and spoke with the project manager and regulatory affairs at Laurentis Energy Partners about the project.

OPG's Application

OPG's Darlington Site is located in the Municipality of Clarington, Ontario. The Darlington site is currently home to four 881 MW CANDU Reactors, a tritium removal facility and a used fuel management facility. The site and facilities are owned and operated by the Licensee, Ontario Power Generation. Darlington Unit 2 first came into service in 1990 and all four Units were in service by 1993. After 3 decades of operations the Darlington reactors are being refurbished. The Darlington Refurbishment Project is proceeding very well. Unit 2 has been refurbished and successfully returned to service and the refurbishment of Unit 3 is well underway. The Darlington site is also the home of the Darlington new nuclear project which currently has a site preparation licence.

OPG employees have been operating the Darlington units safely and effectively since they were first commissioned. Darlington has always met the conditions of their PROL and has always achieved ratings of 'Satisfactory' or higher in all Safety and Control Areas (SCAs).

OPG notified the CNSC in May 2018 of their intention to apply for a licence amendment to allow for the production of Mo-99 at DNGS. OPG submitted the request for an amendment to PROL 13.02/2025 in December 2018 and an addendum to that request in February 2021, reference CMD: 21-H107.1.

Mo-99 is a man-made radioisotope that is used to generate technicium-99m (Tc-99m) for diagnostic nuclear medicine. Mo-99/Tc-99m generators are used in more than 30 million medical procedures annually. Canada used to produce Mo-99 at Atomic Energy of Canada Limited's (AECL) National Research Reactor Universal (NRU). Since the permanent shut down of NRU, Canada has been importing Mo-99/Tc-99m generators. BWX Technology (BWXT) has developed a method of using natural Mo-98 as a target material for irradiation in a CANDU Reactor where neutron capture creates Mo-99. Mo-99 and Tc-99m both have relatively short half-lives so a constant and reliable supply is critical.

A new Mo-99 Isotope Irradiation System (IIS) will be installed on Unit 2 at DNGS. Eight adjuster rods are currently unused and out-of-service on the Darlington units. Installation of the Mo-99 IIS will require the modification of 4 of the 8 unused adjuster rod ports. The adjuster rod assemblies will be removed and a mechanical elevator and target transport system installed. Installation of the Mo-99 IIS will be done by OPG and BWXT and when installation is complete the Mo-99 IIS will be turned over to Darlington Operations. The natural Mo-98 targets are manufactured by BWXT NEC and sent to DNGS. This Mo-99 IIS will propel the targets to/from the reactor core for irradiation. After the target irradiation period is complete Darlington Operations Staff will transfer the Mo-99 into a Type-B transport flask, reseed the system and ship the flask to BWXT Medical for processing.

OPG has mature programs in place to ensure the impact of the Mo-99 IIS on any of the Safety and Control Areas (SCAs), if any, will be negligible.

CNSC Staff's Assessment on OPG's application

The CNWC is in full support of CNSC Staff's assessment, conclusions and recommendations as set out in CMD: 21-H107. Specifically:

- OPG is qualified to carry out the activities authorized by the proposed licence amendment and, in carrying on those activities, will continue to make adequate provisions for the health and safety of people and protection of the environment.
- The operation of the Mo-99 IIS poses minimal additional risk to the operation of the nuclear facility itself, and that Mo-99 will be produced within Darlington's existing safe operating envelope.
- Recommendation that the Commission approve OPG's request for a licence amendment to produce Mo-99, and approve Staff's recommended changes to the PROL and its associated Licence Condition Handbook (LCH).

- CNSC Staff's proposal to use regulatory hold points (RHPs) to confirm the operational readiness of the Mo-99 IIS through the installation and commissioning phases.

Concluding Remarks

This is an important initiative for Canada's medical community, Canada's nuclear industry and for Canadians. About a third of all hospital admissions in Canada will require nuclear medicine for diagnostics or treatment. About 80% of nuclear medical diagnostic procedures rely on Mo-99/Tc-99m. Canada needs a reliable supply of medical isotopes including Mo-99/Tc-99m.

Before concluding the CNWC would like make a suggestion and some related remarks.

The CNWC always promotes continuous dialogue between Company Representatives and Representatives of the appropriate Union(s). As the Mo-99 IIS Project progresses Worker Representatives should have an early and complete understanding of the project with an opportunity to discuss any related matters such as workplace health and safety, training and staffing. The CNWC suggests that, prior to the removal of RHPs, Union Representatives should be given an opportunity to confirm they are satisfied with the level of consultation and that questions related to issues such as occupational health and safety, training and staffing have been adequately addressed.

Canada's nuclear industry offers a number of important benefits to Canadians, including:

- Clean, reliable, affordable electricity in Ontario and New Brunswick without greenhouse gas emissions.
- 76,000 stable, high-quality jobs that help support Canadian Families.
- Standards of workplace health and safety second to none.
- Supporting the R&D and innovation that will continue to serve future generations.
- Producing the medical isotopes that help save lives such as Mo-99/Tc-99m.
- Leading the world in the development and application of nuclear medicine.

OPG's DNGS is an important part of Canada's Nuclear Industry.

- They have been operating to the highest standards throughout the history of the station with proven, successful programs in all Safety and Control Areas (SCAs).
- Darlington's world class operating performance has been recognized by the World Association of Nuclear Operators (WANO) and their industry peers. We are very confident that they will continue operating to the highest standards with a commitment to protecting their employees, the public, and the environment.

- There is strong community support for the Darlington NGS. OPG has established a good track record as a responsible, safe operator and a good community partner. That support has been consistent through Darlington's history.
- The socio-economic benefits to the region cannot be overstated.

In conclusion, the CNWC has reviewed the application from OPG as well as the assessment from CNSC Staff. We are in full support of OPG's application for an amendment to their PROL which will allow the production of Mo-99 at DNGS and we are in full support of CNSC Staff's recommendation that the Commission accept OPG's application as well as CNSC Staff's proposed changes to the PROL, its associated Licence Condition Handbook (LCH) and proposed regulatory hold points.

Thank you for the opportunity to submit our thoughts on this proposed licence amendment.

I would once again like to use our submission as an opportunity to thank the Members of the Commission and CNSC Staff. Your continuous efforts serve to make our workplaces and communities safer.

Bob Walker
National Director
Canadian Nuclear Workers' Council