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Written submission from the North American Young Generation in Nuclear (NAYGN) - Durham Chapter

In the Matter of

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)

Public Hearing - Hearing in writing based on written submissions

September 2021

Mémoire de North American Young Generation in Nuclear (NAYGN) - Durham Chapter

À l'égard de

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

Audience Publique - Audience fondée sur des mémoires

Septembre 2021

Canada

18-August-2021
Tribunal Officer, Secretariat
Canadian Nuclear Safety Commission
280 Slater Street
P.O. Box 1046, Station B
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Re: OPG DNGS Mo-99 Licence Amendment Application (September 23, 2021 Hearing in Writing)

Dear President and Commission Members,

North American Young Generation in Nuclear (NAYGN) provides opportunities for young generation of nuclear enthusiasts to engage and inform the public, and inspire today's demanding energy sector to meet the challenges of the 21st century while developing strong leadership and professional skills, and creating life-long connections.

NAYGN Durham is a local chapter to the Durham Region which started its journey in 2008. The chapter organizes various social and community events such as nuclear conferences, industry tours, technical seminars, and lunch & learn informative sessions in the region. The chapter represents approximately 1000 member strong and diverse NAYGN Durham community, most of whom work in the nuclear energy industry and live in Durham region.

Located approximately 40 kilometers east of Toronto, Durham region is home to Pickering and Darlington Nuclear Generating Stations (NGS). Ontario Power Generation (OPG) operates 10 Canadian Deuterium-Uranium (CANDU) nuclear reactors between the two stations. Year after year, these units have set records in clean, continuous and reliable power generation, with safety being paramount. Most recently, Pickering NGS received an exemplary rating from WANO and Darlington NGS is on track to complete the refurbishment project which will provide cheap and clean power for years to come.

Today, nuclear industry in Canada is not just a way to produce electricity. It is the way to fight climate change by minimizing carbon footprint, and provide clean, and reliable power at lowest costs. OPG has further established its position as a world leader in nuclear innovation by finding and utilizing opportunities to produce nuclear by-products, applications of which are vast and diverse. One such example is medical isotopes, which are often overlooked in Nuclear Industry.

A decision made in 2018 to shut down the National Reactor Universal (NRU) reactor resulted in Molybdenum-99 (Mo-99) world supply falling below 50%. This directly affected millions of patients worldwide. Mo-99 is used in diagnosing heart diseases and cancer, to study organ structure and function, and to perform over 40,000 medical procedures in United States alone. In Canada, preponderance of all hospitals have a nuclear medicine department where Mo-99, and its daughter isotope Technetium-99m (Tc-99m), are used daily by doctors and clinicians to diagnose patients. It has been estimated by the Organization for Economic Co-operation and Development High-Level Group on the Security of Supply of Medical Isotopes that over 80% of all nuclear medicine diagnostic procedures performed globally require Tc-99m. OPG now has the opportunity to fulfill this need and bridge the gap in supply.

OPG directly provides thousands of stable jobs, and indirectly provides thousands more by attracting hundreds of companies. These employees then reinvest back in economy and accelerate the development of the society. As the innovative leader in the industry, OPG is continuously striving to find opportunities to benefit the province and the tax payer. Currently, OPG is also supplying Tritium, and Cobalt-60, both of which are the by-products of Nuclear Power, and tremendously benefit the community, both medically and economically. The Mo-99 project will be another such initiative.

OPG's track record in safety speaks for itself. Pickering NGS has been producing power for 50 years now, and performance has never been better. Handling of the COVID-19 pandemic and ensuring the power stays on is another example of safety. OPS continues to uphold healthy safety culture as its highest and utmost priority throughout the installation and operation of Mo-99 IIS in consistency with this fundamental requirement. Continued safe reactor operation, compliance with operating limits and regulatory requirements will always take precedence.

The comprehensive CNSC staff review of this application determined that: "OPG would have adequate provisions in place to ensure the safe production of Mo-99. As a result, the production of Mo-99 would pose no substantive risk to the operation of the nuclear facility itself. The installation and operation of the Mo-99 IIS would not result in significant doses to workers or members of the public. Further, the emissions for Mo-99 production are expected to be minimal compared to overall station emissions and well below the Derived Release Limits (DRLs) for the site."

NAYGN Durham strongly supports OPG DNGS Mo-99 licence amendment application.

Regards**,**

[1] Taylor Seo, Assistant Technical Engineer, Ontario Power Generation

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