



Oral presentation

**Submission from
CANDU Owners Group Inc.**

In the Matter of the

Canadian Nuclear Laboratories

Application for the renewal of the Nuclear
Research and Test Establishment Operating
Licence for the Chalk River Laboratories

Commission Public Hearing

January 23-25, 2018

Exposé oral

**Mémoire de
CANDU Owners Group Inc.**

À l'égard des

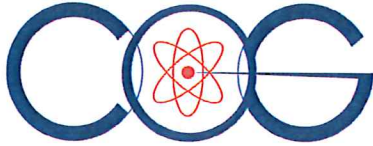
Les Laboratoires Nucléaires Canadiens

Demande de renouvellement du permis
d'exploitation d'établissement de recherche
et d'essais nucléaires pour les Laboratoires
de Chalk River

Audience publique de la Commission

23-25 janvier 2018

CANDU Owners Group Inc.



"Excellence Through Collaboration"

December 11, 2017

Canadian Nuclear Safety Commission
Secretariat
c/o Louise Levert
Canadian Nuclear Safety Commission
280 Slater Street, P. O. Box 1046
Ottawa, ON K1 P 5S9

Email: cns.interventions.ccsn@canada.ca

Subject: Canadian Nuclear Laboratories License Renewal {Ref. 2018-H01}

Dear Ms. Levert,

I am writing on behalf of the CANDU Owners Group in support of the Canadian Nuclear Laboratories application to renew its licence for the Chalk River Laboratories (CRL) for a 10-year period. I also wish to indicate my interest in attending the hearing in January 2018 in Pembroke, Ontario to provide an oral presentation. My presentation will elaborate on the points below.

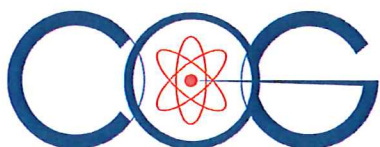
The continued safe operation of CRL, with its many nuclear facilities, laboratories, waste management areas, support buildings and structures, is essential to the health of the Canadian and international CANDU industry. The Chalk River site is home base to some of the most important CANDU industry innovations in safety and asset management through its research and development efforts on behalf of operators.

The CANDU Owners Group (COG) is a not-for-profit organization with membership from all CANDU operators both in Canada and internationally. Our mission is "to improve performance of CANDU stations worldwide through member collaboration." To fulfill this mission, COG is organized around four operational program areas:

- Nuclear and Environmental Safety
- Research and Development
- Information Exchange
- Joint Projects

COG spends approximately \$65 million a year in research, development and joint projects to strengthen the safety, reliability, environmental and cost performance of the CANDU nuclear plants. This is in line with a Canadian Top 15 private-sector company's R&D investment.

The work facilitated by COG on behalf of its members, relies upon capable, knowledgeable suppliers, with deep expertise, human capacity and appropriate facilities to undertake ground-breaking nuclear science. It also requires an organization with a safety culture rooted in nuclear industry best-practice principles. With CNL's history steeped in the development of CANDU design and intellectual property, and its long operating history, CNL is in an excellent position to provide this service and meet these stringent requirements.

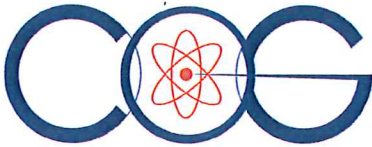


In fact, CNL is a leader in this regard. The discoveries developed in their laboratories and other facilities have resulted in outcomes for the industry, which have in turn positively impacted the lives of millions of people. It has done so through the advancement of nuclear power to generate electricity that is safe, does not cause smog or contribute to climate change while ensuring the quality of life that comes with stable electricity supply. As well, those same CANDU plants provide significant economic and social benefits to the communities in which they operate and the jurisdictions for which they provide this electricity.

As I will detail in my oral presentation, CNL has been both a strong contributing member and partner to COG's research and development efforts throughout the organization's history. Specifically, COG undertakes research in five base programs, in part, through strong partnership with CNL and other nuclear research organizations:

- **Fuel Channels:** The Fuel Channel (FC) program is primarily focussed on addressing the current operational need to improve confidence in the fitness-for-service of CANDU pressure tubes and developing industry standards for pressure tube integrity. Under normal operating conditions, the zirconium-niobium pressure tubes are exposed to high temperature, high internal pressure, high heavy water flow rates and high neutron flux. The resultant property changes, along with corrosion and deuterium ingress, which occur as the pressure tube ages, increase the susceptibility to cracking which is assessed in terms of fitness-for-service guidelines.
- **Safety and Licensing:** The S&L Program addresses issues relating to the safety design basis and safe operating envelope of existing nuclear plants, and has a strong focus on supporting the resolution of outstanding generic safety and licensing issues. There is an increasing focus on addressing plant aging and operational issues. In part, this work assists in maintaining the core capabilities, scientific expertise, and the infrastructure necessary for an ongoing nuclear safety R&D program. The main drivers for the program are safe operation and regulatory compliance, and reducing uncertainties in the licensees' regulatory positions.
- **Health, Safety and Environment:** The HS&E Program addresses issues related to worker health and safety – primarily providing solutions to mitigate risks of radiation exposure through radiation monitoring and dosimetry; and to mitigate environmental risk – identifying and monitoring emissions of concern (both radioactive and conventional), predicting risk to both human and non-human biota and implementing appropriate environmental monitoring.
- **Chemistry, Materials & Components:** The Chemistry, Materials & Components Program covers a diverse range of issues that can impact on the safe, reliable and efficient operation of the major CANDU systems and their auxiliaries, such as the Primary Heat Transport, Moderator, Steam Generators, Emergency Core Cooling and Containment. This includes optimizing the chemistry control regimes and understanding material aging effects in order to predict, manage and mitigate degradation of key components, such as Feeders and Steam Generators; and hence extend the asset life. There is also a strong focus on smaller components such as valves, cables, sealants, lubricants and other organically-based materials.
- **Industry Standard Toolset:** The Industry Standard Toolset (IST) Program is a consolidation of the qualification, development and maintenance activities on different computer codes used for the design, safety analysis and operational support of CANDU reactors.

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As well, CNL is a contributor to COG's Strategic R&D program, which is helping the industry to meet long-term R&D goals (five to 25 year horizon) for continued generation in generations to come.

In addition to its contribution to COG's R&D program, CNL also receives significant benefits as a member of COG that it has employed to strengthen CNL's own operations. As a COG member, CNL is also an important contributor to the information exchange and operating experience that is at the heart of COG's mandate and strengthens our members' operations year over year.

I look forward to providing further detail in my presentation in January.

Sincerely,

A handwritten signature in blue ink, which appears to read 'F. Dermarkar', followed by a period.

Fred Dermarkar, P. Eng.
President and CEO

FD:bb