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Written submission from CANDU Owners Group Inc.

Mémoire de CANDU Owners Group Inc.

In the Matter of

À l'égard de

Bruce Power Inc.
Bruce Nuclear Generating Stations A and B

Bruce Power Inc.
Centrales nucléaires de Bruce-A et B

Application to amend the power reactor operating licence for the Bruce Nuclear Generating Stations (NGS) A and B

Demande visant à modifier son permis d'exploitation d'un réacteur de puissance pour les centrales nucléaires de Bruce-A et B

Hearing in writing based on written submissions

Audience par écrit fondée sur des mémoires

April 2023

Avril 2023

Canada

CANDU Owners Group Inc.

"Excellence Through Collaboration"

April 14, 2023

Canadian Nuclear Safety Commission Secretariat
c/o Louise Levert
Canadian Nuclear Safety Commission
280 Slater Street, P.O. Box 1046
Ottawa, OM K1P 5S9
Email: cnsc.interventions.ccsn@canada.ca

Subject: Bruce Power's request to remove Licence Condition 15.3 from PROL 18.02/2028

Dear Ms. Levert,

I am writing on behalf of the CANDU Owners Group (COG) in support of Bruce Power's application to request the removal of Licence Condition 15.3 from PROL 18.02/2028 and consolidate all fitness-for-service requirements applicable to pressure tubes under Licence Condition 6.1.

Support for the licence amendment

Bruce Power is an active participant in COG's Fuel Channel programs which directly support the safe, extended plant life operation of Canadian and international CANDU power plants. All programs focus on safety through the predictability of pressure tube and garter spring behaviour in late-life operation. COG currently has three programs in place:

1. **Fuel Channel Life Management (FCLM) Program** - The primary objective of the FCLM Program is to develop tools and methodologies for assessing fuel channel fitness-for-service.
2. **Fuel Channel Research and Development (FC R&D) Program** – This program addresses issues related to fuel channel and pressure tube integrity in the areas of crack initiation, deformation, corrosion, and deuterium ingress, and provides technical support to the demonstration of pressure tube fitness-for-service in compliance with CSA Standards N285.4 and N285.8.
3. **Fuel Channel Surveillance** - The COG FC Surveillance program follows the CSA Standard N285.4 for Periodic Inspection of CANDU Nuclear Power Plant Components, which defines the fuel channel inspection requirements in CANDU reactors.

The Bruce Power request is fully supported by the recent advancements in the understanding of pressure tube behaviour, and the documented experimental results that pressure tube fracture toughness will be sufficient for safe operation beyond 120 ppm in the regions of interest near the pressure tube inlet and outlet rolled joints.

Safety has always been Bruce Power's number one priority, and they remain committed to maintaining defense-in-depth with respect to the safe operation of Bruce A and Bruce B overall, specifically, as it relates to pressure tube integrity.

Therefore, COG supports consolidating all fitness-for-service requirements within Licence Condition 6.1, with supplemental compliance verification criteria added to the supporting Section 6.1 of the Licence Condition Handbook.

CANDU Owners Group Inc.

"Excellence Through Collaboration"

Collaboration through the CANDU Owners Group

In addition to the specific information provided above, this submission speaks to some of Bruce Power's efforts to continuously strengthen the nuclear industry through its leadership in collaborative efforts. In particular, those undertaken in collaboration with other members through COG.

COG is a not-for-profit organization with membership from all CANDU operators both in Canada and internationally, as well as the Canadian Nuclear Laboratories. Our mission is "To improve the performance of CANDU stations worldwide through member collaboration" with a vision to support safety and performance excellence at the stations.

To fulfill this mission and vision, COG is organized around the following key operational program areas:

- Nuclear Safety and Environmental Affairs
- Research and Development
- Joint Projects
- Information Exchange, Benchmarking and Operating Experience
- Knowledge Management

COG has developed a leadership and knowledge management training program to strengthen leadership and management skills amongst high-potential technical managers in the nuclear industry.

COG members spend approximately $75 million a year in R&D and Joint Projects to strengthen the safety, reliability, environmental, and cost performance of the CANDU nuclear plants.

The work facilitated by COG on behalf of its members relies on capable, knowledgeable, suppliers with deep expertise, human capacity, and facilities to undertake ground-breaking nuclear science. This research, and the associated engineering activity, is undertaken mostly in Canada by organizations such as Bruce Power.

Further, Bruce Power employees play a significant role in our programs. They share their experiences with others and contribute or play a lead role in all COG program areas.

Key results achieved and enhanced through the full involvement of Bruce Power employees in collaboration with other COG members, via COG, include: CANDU fuel design, advanced fuel design, used fuel inspections, development, verification and validation of fuel, thermalhydraulics, containment, and reactor physics computer codes, passive autocatalytic recombiners, hydrogen research, in-vessel retention experiments, radiopharmaceutical development and testing, low dose radiation research, emergency preparedness, cybersecurity, environmental remediation and clean energy amongst many others.

Thank you for your attention.

Sincerely,

Rachna Clavero
President and CEO
CANDU Owners Group