



**Oral presentation**

**Exposé oral**

**Written submission from  
Ann McAllister**

**Mémoire d'  
Ann McAllister**

In the Matter of the

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**Ontario Power Generation Inc.**

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Applicability of the Darlington New Nuclear Project environmental assessment and plant parameter envelope to selected reactor technology

Applicabilité de l'évaluation environnementale et de l'enveloppe des paramètres de la centrale à la technologie de réacteur sélectionnée pour le projet de nouvelle centrale nucléaire de Darlington

**Commission Public Hearing**

**Audience publique de la Commission**

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**Janvier 2024**

## **Submission commenting on the relevance of the 2009 Environmental Impact Statement (EIS) and Planning Parameter Envelope (PPE) to the BWRX-300 reactor proposed for the Darling Nuclear site**

**Submitted by:** Ann McAllister

### **Background:**

In 2011, the Government of Canada accepted the Joint Review Panel's (JRP) first recommendation, stating, "Any Regulatory Authority (RA) under the Canadian Environmental Assessment Act (CEAA) will need to determine whether the future proposal by the proponent is fundamentally different from the specific reactor technologies assessed by the JRP and if a new EA is required under the CEAA".

### **Consequence:**

The BWRX-300 reactor design is fundamentally different from the four reactors proposed in the 2009 Environmental Impact Statement (EIS) and Planning Parameter Envelope (PPE). Therefore, a new Environmental Impact Assessment to examine the potential impacts of this novel and experimental technology is imperative before a License to Construct is issued.

### **Reasons supporting an EA for the BWRX-300:**

- OPG has acknowledged that the 2009 EA and EIS “may not fully address the impact of the DNNP on Indigenous inherent and treaty rights as they are understood today”. For this reason alone, an EA must be conducted.
- The four original reactors, AP-1000, ACR-1000, ECR-6 and EPR, are all pressurized water reactors (PWRs), while the BWRX-300 is a boiling water reactor, a fundamentally different technology from those considered in the 2009 EA. This inescapable fact makes an EA necessary.
- The BWRX-300 is proposed to be built within the exclusion zone of the existing CANDU reactors. Safety considerations require that this not be done in order to avoid accidents involving multiple reactors. In the interests of safety, this decision must be thoroughly and objectively reconsidered.
- The core of the BWRX-300 will be located underground. Being right beside Lake Ontario, the core will become surrounded by water. Should an accident leading to a breaching of the core containment structure take place, the consequences for the lake’s ecosystem and the millions of people who depend on it for their water supply, livelihood and recreation would be horrifying and must be considered in an EA.

- The JRP's conditions for an underground core were not answered. This must be done as part of an EA for this project.
- Unlike the PWRs, the BWRX-300 has no secondary coolant loop. If a core malfunction occurred, the radioactive steam would be released directly to the atmosphere via the steam turbine, putting workers and the surrounding population at risk of exposure. The safety of this design feature must be rigorously evaluated in an EA.
- If a loss of power to the plant occurred, the proponent claims that natural circulation would cool the reactor for up to 7 days. To my knowledge, no examination has been done to verify this claim. This and other safety claims must be investigated in an EA.
- The Plant Parameter Envelope (PPE) was developed for the four PWRs, not the BWRX-300. No questions have been asked about how the PPE addresses the risks of the BWRX-300's safety features. An EA is required to ask and examine such questions.
- Fuel handing for the BWRX-300 has not been examined. Refueling with uranium enriched from 3.8 to 4.9 percent will have to be done approximately every year which will require that the spent fuel pools be emptied every 8 years. The potential impacts of more frequent fuel handling must be determined in an EA.

- In their [study](#) of the kinds and amounts of wastes produced by SMRs, Dr. Lindsey Krall and Dr. Alison Macfarlane found that the smaller cores of SMRs experience more neutron leakage, resulting in up to 30 times more decommissioning waste (page 10). Safe handling and storage of decommissioning wastes from the BWRX-300 and their costs must be planned and budgeted for, and financial guarantees put in place before the reactor is ever constructed.

**Conclusion:**

The BWRX-300's design is fundamentally different from the four reactors in the EIS, and it was not part of the considerations guiding the development of the Planning Parameter Envelope. For these reasons, the EIS and PPE are not relevant to the BWRX-300, and so it must undergo an EA that assesses the potential impacts of this specific design.