



Oral presentation

Exposé oral

**Written submission from the
Concerned Citizens of Renfrew
County and Area**

**Mémoire de Concerned
Citizens of Renfrew County
and Area**

In the Matter of the

À l'égard d'

Ontario Power Generation Inc.

Ontario Power Generation Inc.

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

Submission from Concerned Citizens of Renfrew County and Area

November 20, 2023

CNSC staff recommend that the Commission determine that the BWRX-300 boiling water reactor technology is “within the bounds” of an environmental assessment done over a decade ago:

Determine, in accordance with JRP recommendation # 1, that the BWRX-300 technology selected by OPG is within the bounds of the JRP EA (CMD 24-H2, page 1)

This recommendation is absurd. The 2011 JRP (Joint Review Panel) Environmental Assessment (EA) did not examine boiling water reactor technology.

Recommendation #1 in the JRP EA says, “if the selected reactor technology is fundamentally different from the specific reactor technologies bounded by the plant parameter envelope, the Panel recommends that a new environmental assessment be conducted.”

Astoundingly, Ontario Power Generation’s submission says “BWRX-300 is not fundamentally different than the technologies originally considered.” (CMD 24-H2-1, pages 3, 6, and 34)

Here are two fundamental differences between the pressurized water reactors examined in the JRP EA and the boiling water reactor(s) now proposed:

- The steam in a pressurized water reactor is produced in a secondary system while the steam in a boiling water reactor is produced directly in the reactor core.
- The steam produced in a boiling water reactor is radioactive, whereas the steam produced in a pressurized water reactor is not radioactive (or far less).

The latter difference is a major concern. It affects radioactive releases during operation and makes maintenance and decommissioning more challenging.

Another major difference with the BWRX-300 is the depth of burial. CNSC staff state:

“The foundation embedment of the BWRX-300 is deeper than the embedment for the bounding scenario reactors.” (CMD 24-H2, page 10)

Staff add:

The EA established foundation embedments of 18.04 metres, 13.5 metres, or 20.2 metres below the finished grade for the PWR, PHWR and BWR designs respectively. OPG’s submission states that the BWRX-300 foundation

embedment is 38.0 meters below grade and therefore deeper than those assessed. (CMD 24-H2, page 12)

The JRP EA does not mention “foundation embedments” and does not assess “BWR designs”. Despite the apparent misattributions in this statement, there is no doubt that the depth of “embedment” proposed for the BWRX-300 raises significant concerns.

One concern raised by the JRP was groundwater impacts. Recommendation #17 is that the CNSC “require OPG to provide an assessment of the ingress and transport of contaminants in groundwater on site during successive phases of the Project...”

The status of this recommendation is “open”. (CMD 24-H2, p. 94)

Putting a novel reactor type underground in bedrock immediately next to Lake Ontario raises many other issues throughout the site preparation, construction, operation, and decommissioning phases. These include:

Worker radiation exposures during maintenance

The turbines of boiling water reactors become more radioactive than those of pressurized water reactors.

Response to an accident

Confinement of radioactive releases would result in very high radiation doses to workers attempting to mitigate effects of an accident.

Foundation stability

Ontario Power Generation says, “Permanent dewatering will not be required because of the planned installation of a waterproof foundation.” (CMD 24-H2-1, page 15) Reactors generate heat. Is it feasible to maintain a “waterproof foundation”? Could reactor heat, combined with the stresses of periodic shutdowns and restarts for maintenance, create stresses that would crack the foundation, and possibly destabilize the adjacent bedrock?

Decommissioning

REGDOC-2.11.2, *Decommissioning*, requires that “The licensee shall select a decommissioning strategy that will form the basis for planning for decommissioning and facilitate achieving the desired end state of the decommissioning project.” The REGDOC lists three possible strategies that “should be considered”: immediate (prompt) decommissioning, deferred decommissioning, and in situ decommissioning. There is no evidence that a decommissioning strategy for the BWRX-300 has been selected.

These issues should be addressed in a new EA. The Commission should reject the staff recommendation and request an assessment of the BWRX-300. This is essential for public trust in the nuclear regulatory process.