



Supplementary Information

Presentation from Northwatch

In the Matter of the

Ontario Power Generation Inc.

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

Commission Public Hearing

January 2024

Renseignements supplémentaires

Présentation de Northwatch

À l'égard d'

Ontario Power Generation Inc.

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

Audience publique de la Commission

Janvier 2024

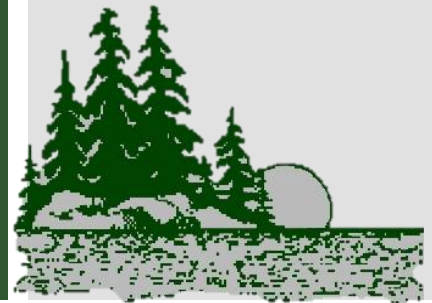
Applicability of the Darlington New Nuclear Project Environmental Assessment and Plant Parameter Envelope to the BWRX-300



Ref. 2024-H-02

Northwatch

January 2024 Presentation to the Canadian Nuclear Safety Commission





The BWRX-300 is fundamentally different from the reactors considered in the 2009-2011 review

- The BWRX-300 is a boiling water reactor; no designs assessed in 2009 were BWRs and there is no history of operating BWR reactors in Canada
- The four reactors assessed in 2009 would have produced 4,800 mW with four units operating; the BWRX-300 will produce only 1,200 mW
- Fuel waste dimensions are significantly different
- The BWRX-300 is of a fundamentally different design as a deeply embedded reactor with a depth of 38 metres below surface and the reactor building constructed in the subsurface within the excavation
- The 2009 EIS estimated a collective dose of 2.68 person-Sv for four units producing 4,800 mw of energy versus an estimate of a collective dose of 1.96 person-Sv for four BWRX reactors producing 1,200
- The BWRX-300 will require a significantly reduced workforce size from that predicted in the 2009 EIS

The BWRX-300 design is significantly different in several respects

- BWRX-300 public dose rates are significantly higher – an estimated 10 x higher – for one accident scenario (pool fire) and 54% higher doses were estimated for the public in a dry storage container accident
- The BWRX-300 used fuel pool is smaller; the smaller used fuel pool will necessitate earlier transfer of the used fuel from wet to dry storage; this could have significant consequences for worker and off-site exposures
- emissions of iodine are higher for the BWRX-300 than the values assumed in the EIS
- BWRX-300 radiological waste contains different proportions of radionuclides than the waste that was assessed in 2009 EIS
- the mass of fuel placed in the spent fuel transfer cask is different than what had been assessed in the EIS

The BWRX-300 design is significantly different in several respects

- Airborne radioactive emissions from the BWRX-300 are in different proportions
- Radioiodines and carbon-14 emissions from the BWRX-300 are higher for the BWRX-300
- Radioactive waste volumes are different and in different proportions for the BWRX-300
- Alpha and beta-gamma activity per cubic metre of waste is higher for the BWRX-300
- The BWRX-300 will result in increases in tritium concentrations in on-site ground water and in nearby off-site wells

The BWRX-300 design is significantly different in several respects

- The BWRX-300 will generate higher activity spent fuel
- The BWRX-300 spent fuel will require heavier spent fuel casks
- The BWRX-300 will require higher rates of water withdrawal from Lake Ontario
- The BWRX-300 will require larger quantity of water stored in water supply system
- The BWRX-300 will produce considerably higher water temperature at discharge into Lake Ontario

The BWRX-300 design is significantly different in several respects

These significant differences all increase dose, exposure and/or radioactive risk for workers and the public, on-site and /or off-site of the operation.

While each of these are significant differences from the 2009 EIS estimates, in combination they create a fundamentally different risk profile for the Darlington New Nuclear Project operating and post-closure conditions.

Fatal Flaws

- CNSC Staff Did Not Evaluate Whether the Selected Technology is Fundamentally Different
- OPG's Review Documents Do Not Address Radioactive Waste
- The Project Lacks Consistent Definition
- The documents do not provide sufficient information

Review of Supporting Documents

- Darlington New Nuclear Project Environmental Impact Statement Review Report for Small Modular Reactor BWRX-300
- Use of Plant Parameters Envelope to Encompass the Reactor Designs Being Considered for the Darlington Site

Conclusion

Ontario Power Generation must be required prepare and make public a completed project description as the first step in an environmental assessment.

A full environmental assessment is required. The 2009 Environmental Assessment is not a substitute for an environmental assessment of OPG's fundamentally revised Darlington New Nuclear Project.

REQUESTS

FOLLOWING A
DECISION BY
THE CNSC
THAT A NEW
E.A IS
REQUIRED

- Direct CNSC staff and OPG to operate with greater openness and transparency in future steps related to the assessment and / or licensing
- Post all reference and supporting documents associated with OPG's application on the OPG web site with links from the CNSC web site to the specific urls for each document
- Disposition comments submitted to the CNSC
- Publicize future hearing notices, including participant funding opportunities, as part of a hearing notice or alternate notice that includes the review timeline, dates of document availability, comment deadlines and hearing time frames, as per the usual practice (not followed for H2024-H-02)