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## **Oral presentation**

## **Exposé oral**

### **Written submission from Bill Noll**

### **Mémoire de Bill Noll**

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**

**January 2024**

**Janvier 2024**

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**From:** W.J. Noll  
**Sent:** November 20, 2023 12:26 AM  
**To:** Interventions / Interventions (CNSC/CCSN)  
**Subject:** Submission from Bill Noll Concerning the Proposed Development of BWRX-300 Reactors at the Darlington site

Written Intervention submission to Canadian Nuclear Safety Commission (CNSC) regarding the applicability of a 2009 Environmental Assessment (EA) to the Darlington New Nuclear Project (DNNP) for four experimental boiling water reactors (BWRX-300) November 19 2023 by Wjnull, 17 Caribou Ave, Stittsville Ontario, K2S1M8 519 507 9905

Dear Commissioners.

Enclosed is my view where the BWRX reactor is fundamentally different from those reactors included in the 2009 EIS and given these significant differences in the design of these reactor types, I am requesting that the CNSC perform a full Environmental Assessment of the planned implementation of the BWRX reactor at Darlington .

Also given this will be the first implementation of a SMR technology in Canada and that both the Ontario and Federal Government's plan for a massive implementation of these types of reactors to help achieve our climate targets , the CNSC should air on the side of caution and do all in its power to ensure the technology will deliver what has been promised by the suppliers of this technology. Given the serious situation with our climate condition and targets, we cannot afford to be wrong about the safety capabilities promised ,the environmental impacts ,the cost of producing electricity, the timelines associated with the implementation, and the benefits being promised by OPG for the BWRX reactor. These requirements of the project can only be fully validated by the implementation of an Environmental Assessment.

Based on my personal experiences in bringing products to market , mistakes made or capability not fully investigated at the outset of a project will led to significant delays in meeting the desired timelines and costly overruns for the project

The following lists some of the major design and project differences when compared to proposed project in the 2011 Environmental Assessment report ;

1. The fuel and the fuel rods to be used in this reactor are different than the reactor evaluated in the original 2011 Plant Parameter Envelope and those of the Canadu reactors. These differences will have significant challenges when it comes to the placement of the used spent fuel in a Deep Geological Repository(DGR) being proposed by the Nuclear Waste Management Organization (NWMO). The fuel is a fundamental component of any reactor design and determines the overall operation and efficiency of the reactor and is the most dangerous component when ensuring the safety for people and environment .

The High Level spent fuel waste from the BWRX reactor is much more radioactive per kilogram ,generates more heat , and can be prone to a chain reaction outside of the reactor. These parameters of the spent fuel will require new designs by the NWMO for placement in a DGR namely; a new container designs , changes in the placement of the spent fuel in the cavities of a DGR, and how to deal with the heat generated from the spent fuel.

The Nuclear industry has spent more than 60 years in designing how to construct a DGR to store the spent fuel of the Candu reactors and given the spent fuel from the BWRX is significantly different than the Canadu reactor in its physical and chemical makeup ,a complete analysis of its impact is required .

2. The GE-Hitachi BWRX-300 design is a boiling water reactor never tested anywhere in the world. In the BWRX reactor, several design approaches are significantly different than previous designs considered and implemented in Canada ,namely; the overall process for generating electricity and the cooling process of the reactor.

3. The placing of the reactor below ground has never been undertaken in Canada . Again this would be the first of its kind for Canada and if successful would most likely be the approach followed in later implementations .

4. The safety capabilities of a reactor design have been noted by the CNSC as one of their major tasks to evaluate prior to the approval of a reactor design . Given that BWRX reactor is using a novel approach to protect against a meltdown of the reactor under a failure condition, this feature, if it does not perform as advertised, would have significant consequences to safety of the program and to lives of the people living in the surrounding communities.

5. Managing the placement of the used spent fuel in pools or cold storage is different because of the heat being generated and the physical size of the spent fuel bundle. Also the plan to remove the fuel from the reactor after only 12 months of operation ,will result in a much larger volume of the spent fuel being placed in the pools or cold storage which raises the question what will be the size required to store the spent fuel in pools or cold storage .

Thank you for taking the time to consider my conclusions and recommendation to conduct a full Environmental Assessment of the BWRX reactor prior to its implementation at Darlington.

regards  
Bill Noll