

OPG Proprietary

October 03, 2023

CD# NK054-CORR-00531-10860

Ms. S. Eaton
Director,
Advanced Reactor Licensing Division
Canadian Nuclear Safety Commission
P.O. Box 1046
280 Slater Street
Ottawa, Ontario, K1P 5S9

Dear Ms. Eaton:

DNNP - Request for CNSC Acceptance for OPG Use of Computer Codes in BWRX-300 Probabilistic Safety Assessments

The purpose of this letter is to request CNSC acceptance of the computer codes to be used by GE Hitachi (GEH) in the preparation of its Probabilistic Safety Assessments (PSAs) for Darlington New Nuclear Project (DNNP) - BWRX-300 as part of the Licence to Construct Application [R1], pursuant to Section 3.9 of the CNSC Regulatory Document REGDOC-2.4.2 Version 2, Probabilistic Safety Assessment (PSA) for Reactor Facilities.

OPG has also submitted DNNP Probabilistic Safety Assessment methodology to the CNSC for acceptance as part of the LTC Application, which was reviewed and deemed adequate, in concert with the feedback that was provided [R2]. The Preliminary Safety Analysis Report (PSAR) – Chapter 3 was previously submitted to the CNSC in [R3], and it identified the computer codes to be used in the preparation of the PSAs. The PSA-related computer codes are listed below:

- CAFTA version 11
- PRAQuant version 11
- SYSIMP version 11
- UNCERT version 11
- FRANX version 11
- ACUBE version 11
- FTREX version 1.8
- HRA Calculator version 5.2

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Acceptance for use of previous versions of the PSA codes was sought by OPG in [R4] and CNSC acceptance was granted as part of [R5]. OPG is currently working on qualifying Phoenix Architect 2.0 which will include version 11 of CAFTA, PRAQuant, SYSIMP, UNCERT, FRANX and ACUBE. This work is projected to be completed by the end of Q4 2023. The above-mentioned suite of PSA computer codes is managed by the Electric Power Research Institute (EPRI) and is widely used in nuclear and aeronautics industries. All software packages were developed in accordance with EPRI's software quality assurance program.

Submission of this letter completes OPG REGM AR 28260903-10. OPG requests CNSC acceptance for the use of these codes for PSA in support of the DNNP BWRX-300 Licence to Construct Application.

If you have any questions regarding this submission, please contact Ms. Sevana Bedrossian, Manager, Regulatory Affairs – DNNP Licensing at (416)-716-3879 or by email at Sevana.Bedrossian@opg.com.

Sincerely,



Mark Knutson
Senior Vice President
Enterprise Engineering and Chief Nuclear Engineer
Ontario Power Generation Inc.

Attach and Encl

cc: C. Ducros - CNSC (Ottawa)
B. Rzentkowski - CNSC (Ottawa)
N. Simon - CNSC (Ottawa)
M. Naraine - CNSC (Ottawa)
N. Dormer - CNSC (Ottawa)
D. Ouellette - CNSC (Ottawa)

- Reference
1. OPG Letter, M. Knutson to D. Saumure, "Darlington New Nuclear Project Application for Licence to Construct a Reactor Facility", NK054-CORR-00531-10738, October 31, 2022.
 2. CNSC Letter, S. Eaton to M. Knutson, "DNNP CNSC Staff Response to OPG Responses to CNSC Staff Comments On Probabilistic Safety Assessment Methodology and Hazards Analysis Methodology", NK054-CORR-00531-10829, July 12, 2023.

3. OPG Letter, M. Knutson to D. Saumure, "DNNP Submission of Package # 2A Design and Safety Analysis Deliverables in Support of the Licence to Construct Application for the CNSC Review", NK054-CORR-00531-10736, October 31, 2022.
4. OPG Letter, M. Knutson to A. Viktorov and N. Riendeau, "Request for CNSC Acceptance for OPG Use of Revised EPRI Software Packages for Probabilistic Safety Assessments", N-CORR-00531-19642, May 03, 2019.
5. CNSC Letter, A. Viktorov and N. Riendeau to M. Knutson, "Darlington and Pickering NGS – CNSC Response to OPG's Request for Use of Revised EPRI Software Packages for Probabilistic Safety Assessments", N-CORR-00531-19735, May 24, 2019.

Summary of Regulatory Commitments, Regulatory Obligations and Regulatory Management Actions Made/Concurrence Requested

CD#

Submission Title: DNNP – Request for CNSC Acceptance for OPG Use of Computer Codes in BWRX-300 Probabilistic Safety Assessments

Regulatory Commitments (REGC):

No.	Description	Date to be Completed
	None	N/A

Regulatory Management Action (REGM):

No.	Description	Date to be Completed
	None	N/A

Regulatory Obligation Action (REGO):

No.	Description	Date to be Completed
	None	N/A

Concurrence Requested: None