



Supplementary Information

Presentation from CNSC Staff

In the Matter of the

Ontario Power Generation Inc.

Application for a licence to construct one BWRX-300 reactor at the Darlington New Nuclear Project Site (DNNP)

Commission Public Hearing Part-2

January 8-10 and 13-14, 2025

Renseignements supplémentaires

Présentation du personnel de la CCSN

À l'égard d'

Ontario Power Generation Inc.

Demande visant à construire 1 réacteur BWRX-300 sur le site du projet de nouvelle centrale nucléaire de Darlington (PNCND)

Audience publique de la Commission Partie-2

8-10 et 13-14 janvier 2025



Canadian Nuclear
Safety Commission

Commission canadienne
de sûreté nucléaire

Canada

Assessment of Ontario Power Generation's Application for a Licence to Construct a BWRX-300 Reactor at the DNNP Site



CNSC Staff Supplemental Presentation

Commission Hearing – Part 2

January 8-10 & 13-14 2025

CMD 24-H3.E

E-doc #7389341 (pptx)

E-doc #7426617 (pdf)



Presentation Outline

- Ontario Power Generation Application for a Licence to Construct
- Overview of Regulatory Approach and Assessment
- Why CNSC Staff are Recommending a Licence
- Developments since Part 1 Hearing
- Update on Ongoing Indigenous Consultation and Engagement
- CNSC Staff Oversight of BWRX-300 Licensing Regulatory Commitments
- Regulatory Review of Interventions
- CNSC Staff Conclusions and Recommendations



OPG Application for a Licence to Construct

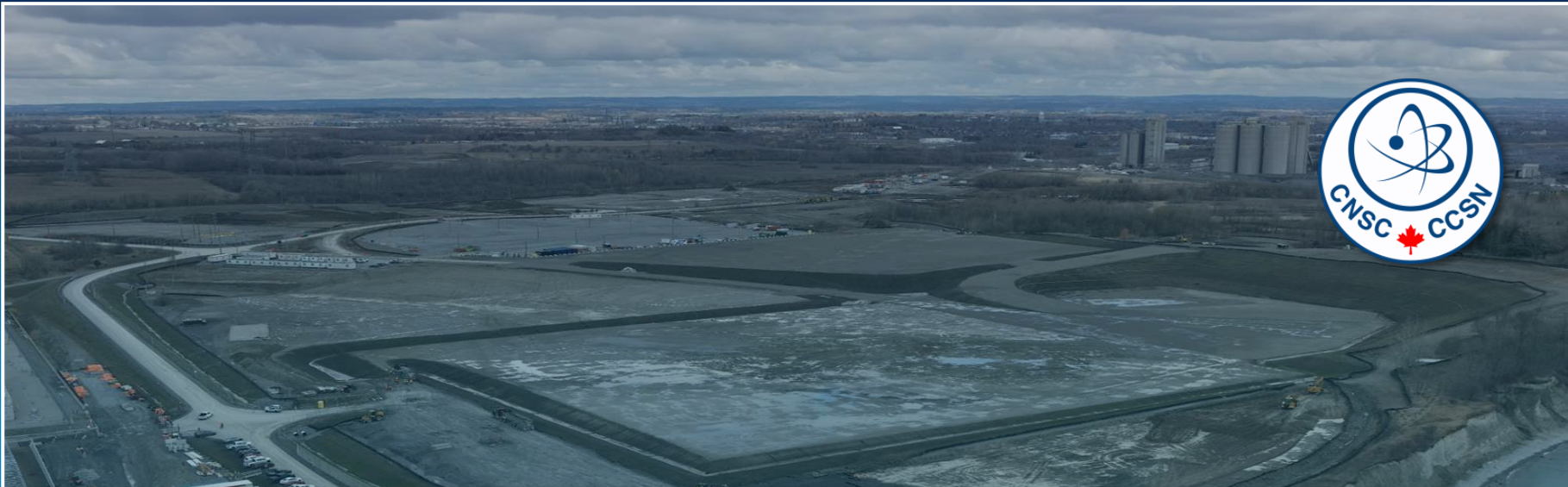
In accordance with the Nuclear Safety and Control Act (NSCA) and associated regulations, OPG applied to the Commission for:

- A licence to authorize construction of a single BWRX-300 reactor facility

OPG has proposed the following licensed activities:

- **Construct one BWRX-300 Powerblock**, which includes the structures, systems and components (SSCs) associated with the Reactor Building, Turbine Building, Control Building, and the Radwaste Building
- **Construct supporting infrastructure** for up to four BWRX-300 reactors
- **Inspect and test installed SSCs**, and conduct fuel-out commissioning
- **Complete remaining licensed activities** under the existing site preparation licence

Licensed activities would not allow for nuclear fuel to be on site



OVERVIEW OF REGULATORY APPROACH AND ASSESSMENT

LTC BWRX-300 Reactor – January 8-10 & 13-14, 2025, CMD 24-H3.E



Regulatory Approach

- CNSC staff applied a risk-informed approach, focusing on evaluating the construction safety case
 - No nuclear fuel on-site as OPG has not requested authorization for the use of nuclear materials during the construction of the BWRX-300 reactor
- Compliance Oversight
 - Use of site-specific conditions
 - Use of regulatory hold points
- International Collaboration and Leveraging of Information
 - Memoranda of Cooperation (MOC) with other national nuclear regulators



Regulatory Basis

- Environmental Assessment (EA) applicability to the BWRX-300 technology
 - April 2024 Commission Record of Decision determined the technology fits within the bounds of the approved DNNP EA
- REGDOC-1.1.2 – *Licence Application Guide: Licence to Construct a Reactor Facility* which references the NSCA and associated regulations
 - Applicable REGDOCs and CSA standards are also referenced
- International standards and guidance were used
 - IAEA standards and guides
 - US NRC regulatory guides and technical positions



Safety and Control Areas Framework

Management



Management systems

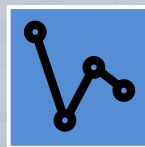


Human performance



Operating performance

Facility & Equipment



Safety analysis



Physical design



Fitness for service

Core Control Processes



Radiation protection



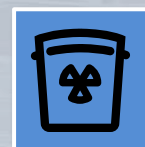
Environmental protection



Health & safety



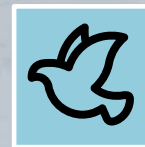
Emergency management & fire protection



Waste management



Security



Safeguards & non-proliferation



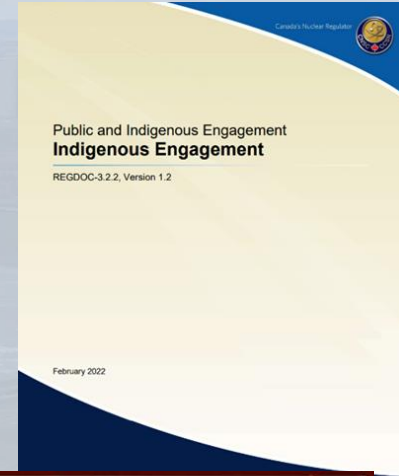
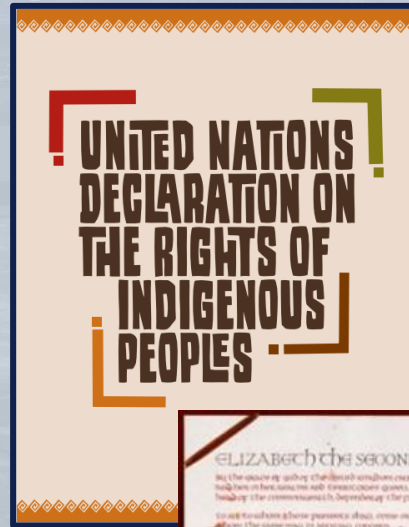
Packaging & transport



Approach to Indigenous Consultation and Engagement

CNSC staff’s approach to consultation with Indigenous Nations and communities is guided by:

- The CNSC’s commitment to Reconciliation
- The Duty to Consult, and where appropriate, Accommodate
- United Nations Declaration on the Rights of Indigenous Peoples
- REGDOC 3.2.2 – *Indigenous Engagement*





Why CNSC staff are Recommending a Licence (1)

- CNSC staff concluded that OPG's application and its supporting documentation provided sufficient information to recommend a licence
 - The application meets regulatory requirements, as outlined in the NSCA and applicable regulations
 - CNSC staff identified four site-specific licence conditions and three regulatory hold points
 - Regulatory hold points pre-requisites are described in the draft LCH and will be managed by CNSC staff through compliance verification
- OPG provided adequate design information for CNSC staff to have confidence that the proposed facility can be constructed safely
 - Aligns with international experience, IAEA expectations and international benchmarking

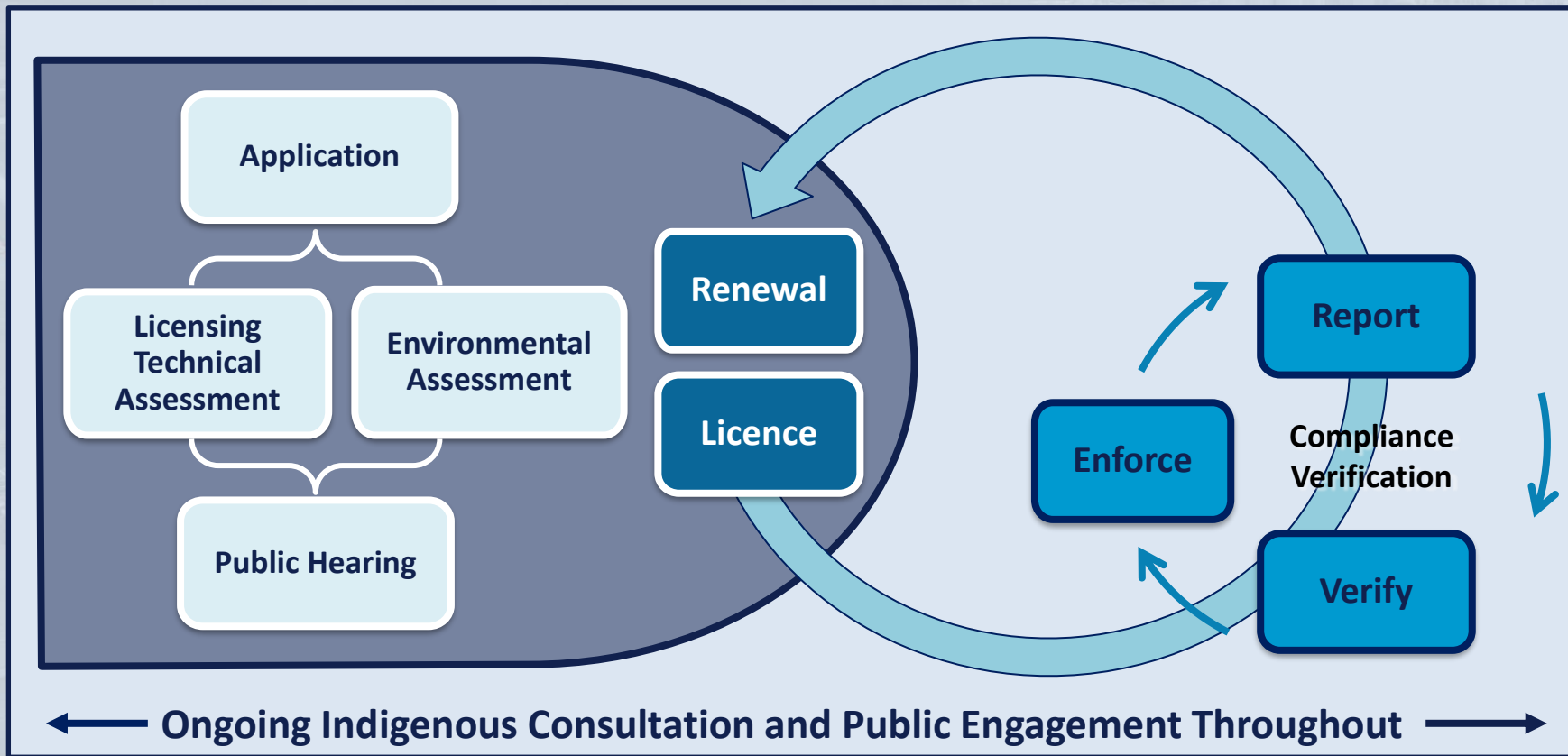


Why CNSC staff are Recommending a Licence (2)

- Adequacy of BWRX-300 safety case
 - CNSC staff focused its regulatory review on key technical topics, bound to either novel features or alternative approaches
 - Informed by international operating experience and discussions with other national nuclear regulators
- Use of site-specific licence conditions
 - Ensure that design adequacy and safety case remain acceptable
- Changes outside the bounds of the safety case proposed by OPG will be brought to the Commission for decision



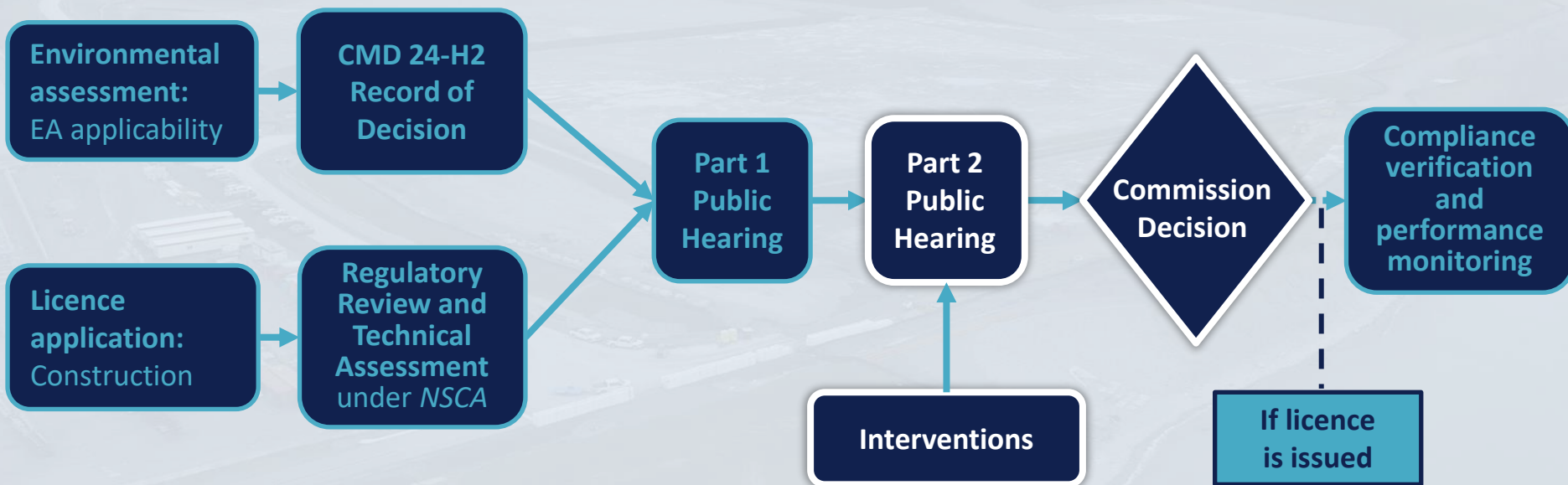
CNSC Licensing and Compliance Process





DNNP LTC Regulatory Review Process Overview

← ENVIRONMENTAL MONITORING THROUGHOUT LIFECYCLE OF PROJECT →



← ONGOING INDIGENOUS AND PUBLIC INVOLVEMENT →



DEVELOPMENTS SINCE PART 1 HEARING

LTC BWRX-300 Reactor – January 8-10 & 13-14, 2025, CMD 24-H3.E



CNSC Staff Position on CMD 24-H3-Q

Following the completion of Part 1 Hearing, the Commission requested additional information:

- 7 questions
- Requested regulatory position on each question, as applicable

Regulatory positions on the Commission questions are documented in CMD 24-H3.F

Responses to Commission Questions do not alter CNSC staff position for recommending a construction licence



Predictive Environmental Risk Assessment for Construction

OPG submitted the Predictive Environmental Risk Assessment (ERA)

- The predictive ERA evaluates any environmental and human health risks from proposed licensed activities
- CNSC staff acceptance of the predictive ERA is required prior to removal of regulatory hold point 1
- CNSC staff are currently reviewing the predictive ERA
- If the predictive ERA identifies any new or elevated risks due to construction related activities, OPG will be required to update their monitoring program

Environmental monitoring programs will be used throughout the construction phase



Update on Ongoing Indigenous Consultation and Engagement Activities

- CNSC staff efforts focused on the approach to assessing impacts to rights and working to understand potentially impacted Indigenous Nations and communities views on the proposed mitigation measures and commitments to address concerns raised
- Consultation activities with potentially impacted Indigenous Nations and communities included:
 - Discussions and consultation at regularly scheduled meetings under signed Terms of Reference for Long Term Engagement
 - DNNP specific meetings held with the Michi Saagiig Nations of the Williams Treaties First Nations and OPG
 - Opportunities to review and provide feedback on content specific to them in CNSC staff documents prior to finalizing
 - Provision of additional funding to support Michi Saagiig Nations participation in Part 2 of the hearing
- CNSC staff continued to share information and provide opportunities for engagement with all interested Indigenous Nations and communities



Responses to Intervention Key Themes Raised by Indigenous Nations and communities

Issues and concerns include:

- The CNSC's approach to consultation, Rights Impacts Assessments (RIAs) and cumulative effects for the DNNP
- The CNSC's lifecycle licensing stages, including for waste management
- The CNSC's approach to the implementation of UNDA/UNDRIP
- Request for an enforcement mechanism, such as regulatory hold points, to ensure OPG's commitments are upheld



Assessment of Potential Impacts on Rights from OPG's Licence to Construct Application (1)

Context:

- As part of the Crown's Duty to Consult, and where appropriate, Accommodate, the Commission will consider potential impacts to rights and measures to mitigate and accommodate impacts in relation to this licensing decision
- Rights Impact Assessments (RIAs) are a best practice utilized across the Federal Government for major projects and decisions that could potentially impact Aboriginal and/or Treaty Rights
- CNSC staff proposed conducting RIAs in response to concerns raised by Curve Lake First Nation, Hiawatha First Nation and the Mississaugas of Scugog Island First Nation about the potential for the LTC application and Commission decision to impact their Aboriginal and Treaty rights



Assessment of Potential Impacts on Rights from OPG's Licence to Construct Application (2)

Efforts for Collaboration:

- CNSC staff made efforts to understand the Michi Saagiig Nations' views on their rights and how the application may impact their rights
- CLFN, HFN and MSIFN raised concerns regarding the CNSC's proposed approach to RIAs
- CNSC staff made efforts to discuss, understand and address the concerns, including requesting feedback on alternative approaches to the assessments and collaborating on recommendations to the Commission
- CNSC staff's goal for the RIA process for OPG's LTC application was to strive to achieve consensus on key issues and concerns and how to meaningfully address them



Assessment of Potential Impacts on Rights from OPG's Licence to Construct Application (3)

Concerns regarding the RIA process and potential impacts on rights raised by CLFN, HFN, MSIFN:

- Gaps in information currently available to assess and address impacts on rights
- Timing, scope and factors considered in the RIA
- Cumulative and legacy impacts, including the CNSC's definition of baseline conditions
- Potential for the LTC decision to impact Aboriginal and Treaty rights



Assessment of Potential Impacts on Rights from OPG's Licence to Construct Application (4)

Proposed Key Commitments and Accommodations:

OPG

- Supporting an Indigenous Knowledge study and cumulative effects study
- Environmental Monitoring Augmentation Plan
- Independent review of international best practice for waste management
- Continued engagement on offsetting and restoration

CNSC

- Supporting an Indigenous Knowledge study and cumulative effects study
- Working with the First Nations to incorporate and consider their knowledge in CNSC regulatory processes and oversight
- Collaboratively updating RIAs based on new information, for future regulatory phases of the DNNP
- Proposing LC 15.4
- Formal working group to collaborate on oversight



Oversight of commitments to the Michi Saagiig Nations and LC 15.4

CNSC staff proposed site-specific Licence Condition 15.4

- Requirement for OPG to conduct ongoing engagement specific to the DNNP
- Sets out the expectation that OPG continues to engage and collaborate with the Michi Saagiig Nations on the ongoing studies and assessments

CNSC staff recommend that the Commission direct CNSC staff to implement commitments outlined in the supplemental CMD

CNSC staff are committed to engaging with Michi Saagiig Nations on the oversight, implementation and reporting on commitments made by OPG and CNSC staff



Analysis and Conclusions Regarding Potential Impacts on Rights from OPG's Licence to Construct Application

- CNSC staff recommend that the Commission direct CNSC staff and OPG to implement the proposed mitigation measures as outlined in the previous slide and Section 4.3.6 of the supplemental CMD
- Considering all information available to date, and acknowledging that the Michi Saagiig Nations' interventions **will continue to inform the Commission's decision**, CNSC staff's view is that the potential impacts to Aboriginal and treaty rights have **been appropriately considered, assessed, mitigated and accommodated**, should the Commission grant a Licence to Construct



CNSC STAFF OVERSIGHT OF BWRX-300 LICENSING REGULATORY COMMITMENTS

LTC BWRX-300 Reactor – January 8-10 & 13-14, 2025, CMD 24-H3.E



Regulatory Hold Points

CNSC staff proposed three Regulatory Hold Points

- Pre-requisites required to be met prior to removal of regulatory hold point
 - Described in the draft *Licence Conditions Handbook*
- CNSC staff will conduct compliance verification to verify all associated activities have been completed before recommending the removal of a regulatory hold point
 - Informed by robust regulatory hold points process
 - As discussed in Part 1 of the Hearing and described in CMD 24-H3

Regulatory Hold Points

1. Installation of the Reactor Building Foundation
2. Installation of the Reactor Pressure Vessel
3. Fuel-Out Commissioning



OPG Estimated Construction Timelines

1

RHP-1

Installation of Reactor Building Foundation

Examples of Activities:

- Construction of the BWRX-300 Powerblock structures

Q1

Q2

Q3

Q4

2026

2

RHP-2

Installation of Reactor Pressure Vessel

Examples of Activities:

- Connection of Main Steam and Feedwater system supply lines to Nuclear Island
- Reactor Building crane install

Q1

Q2

Q3

Q4

2027

3

RHP-3

Fuel-Out Commissioning

Examples of Activities:

- Testing of installed pressure retaining systems and components
- Testing of structures, systems, and components

Q1

Q2

Q3

Q4

2028

No nuclear material will be used during the DNNP construction



Licensing Regulatory Commitments

- Proposed site-specific Condition 15.3 requires OPG to obtain approval of the Commission, or a person authorized by the Commission, prior to the removal of regulatory hold points
 - Licensing regulatory commitments for each regulatory hold point included in draft *Licence Conditions Handbook*
- OPG commitments summarized in CMD 24-H3, Appendix D.2
 - Full list of commitments, contained in CNSC staff document BWRX-300 Licensing Regulatory Commitments, are tied to regulatory hold points 1, 2, or 3
 - Commitments that are unrelated to a regulatory hold point are managed through compliance verification
- CNSC staff will report on the status of these licensee commitments to the Commission, public and Indigenous Nations and communities
 - Annually through the Nuclear Power Generating Sites Regulatory Oversight Report
 - Maintaining the CNSC website on project status and regulatory hold points status
 - Through the regular Power Reactor Status Report to the Commission following the removal of any regulatory hold point

**Subject to close regulatory scrutiny by way of
Compliance Verification Criteria in draft *Licence Conditions Handbook***



REGULATORY REVIEW OF INTERVENTIONS

LTC BWRX-300 Reactor – January 8-10 & 13-14, 2025, CMD 24-H3.E



Call for Interventions

- Notice of Public Hearing posted June 27, 2024
 - Due date for Intervenor submissions was November 4, 2024
- Over 80 submissions received
 - Approximately half of interventions raised concerns on the DNNP
- CNSC staff reviewed each of the intervenor submissions
 - Wide range in submissions scope, approach, premises, and topics
- Key themes identified by CNSC staff are described in **CMD 24-H3.F**

CNSC staff responses to key themes provided in CMD 24-H3.F



Summary of What We Heard

Key Themes Identified	Safety and Control Area
<ul style="list-style-type: none"> • BWRX-300 Safety Case 	Safety Analysis
<ul style="list-style-type: none"> • Licensing and Design Completeness 	Physical Design
<ul style="list-style-type: none"> • Emergency Planning • Land Use Planning 	Emergency Management and Fire Protection
<ul style="list-style-type: none"> • Waste Management and Disposal • Decommissioning 	Waste Management
<ul style="list-style-type: none"> • Risk of Nuclear Weapons Proliferation 	Safeguards and Non-Proliferation
<ul style="list-style-type: none"> • Overall Concern with New Nuclear • Support for the DNNP 	Other Matters of Regulatory Interest



Responses to Key Themes (1)

BWRX-300 Safety Case

- The BWRX-300 safety case is supported by the Preliminary Safety Analysis Report and CNSC staff confirmed that it meets regulatory requirements
- Safety Analysis is an iterative process, and as it progresses, CNSC staff will continue to verify the adequacy of the safety case
- Any design changes outside the bounds of the safety case must be approved by the Commission

BWRX-300 Licensing and Design Completeness

- As per the Regulations and outlined in CNSC Regulatory Documents, a complete design is not required at the licence to construct stage
- CNSC staff determined that the level of information provided for reactor design is sufficient to proceed with construction
- The CNSC will stop any project where the health and safety of people or the environment are not protected



Responses to Key Themes (2)

Emergency Planning and Land Use for DNNP site

- Provincial and territorial authorities are responsible for the sizing of the emergency planning zone (EPZ)
 - Emergency planning is determined based on safety analysis to identify potential accidents that could have off-site impacts
- In Ontario, Emergency Management Ontario (EMO) is the authority and collaborates with OPG on EPZ determination
 - CNSC staff review the EPZ determination against regulatory requirements
- A nuclear emergency plan specific to the DNNP site is required prior to the operating phase, should the project proceed
- Province of Ontario has Public Policy Statement for land use planning around nuclear power generating stations



Responses to Key Themes (3)

Interim and Long-Term Waste Storage

- No nuclear fuel is permitted on site, nor any radioactive waste generation throughout the construction period
- As per Canada's national framework for radioactive waste management, waste owners are required to manage this waste in a safe and secure manner
- DNNP Preliminary Decommissioning Plan confirmed to be adequate and serves as the basis for decommissioning cost estimate and financial guarantee



Responses to Key Themes (4)

Risk of Nuclear Weapons Proliferation

- Canada is committed to the peaceful use of nuclear energy as a party to the *Treaty on the Non-Proliferation of Nuclear Weapons*
 - International commitment not to acquire nuclear weapons, and to accept IAEA safeguards to independently verify the peaceful use of nuclear activities and the non-diversion of nuclear material
- Canada's domestic Nuclear Non-proliferation Policy also commits that Canada's nuclear exports do not contribute to the development of nuclear weapons in any other country
- The CNSC implements a regulatory import/export licensing and compliance program to ensure international transfers of nuclear and nuclear-related dual use items conform to Canada's non-proliferation commitments



Responses to Key Themes (5)

Overall Concern with New Nuclear

- The CNSC role is to disseminate objective, scientific, technical, and regulatory information
 - Outreach and Engagement is a critical aspect of this role
- For the DNNP, the CNSC communicated through its website, Commission proceedings, webinars, open houses, social media channels, and the open government registry

Support for the DNNP

- Intervenors are of the view that it will assist in meeting climate change goals and energy needs
- Recognition of the CNSC as an experienced, rigorous nuclear regulator



CNSC STAFF CONCLUSIONS AND RECOMMENDATIONS

LTC BWRX-300 Reactor – January 8-10 & 13-14, 2025, CMD 24-H3.E



CNSC staff views and recommendations related to Indigenous Consultation

- CNSC staff conducted Consultation and engagement with the goal of striving to achieve consensus with potentially impacted Indigenous Nations and communities on key issues and concerns related to the DNNP LTC application
- OPG's engagement in supporting CNSC's consultation obligations has met the expectations of REGDOC 3.2.2 *Indigenous Engagement*
- Based on information to date and acknowledging the opportunities for Indigenous Nations and communities to express their views to the Commission during the public hearing process, CNSC staff recommend to the Commission that it determine the Duty to Consult, and where appropriate, accommodate under section 35 of the Constitution Act as having been discharged in an appropriate and adequate manner

CNSC staff are committed to ongoing engagement, collaboration and consultation throughout the lifecycle of the DNNP



CNSC Staff Conclusions

CNSC staff reaffirm that:

- The application to construct one BWRX-300 Powerblock and supporting infrastructure at the DNNP site meets applicable regulatory requirements
- OPG has the necessary programs to safely conduct licensed activities, taking into account the implementation of regulatory commitments

CMD 24-H3 conclusions remain valid and appropriate



CNSC Staff Recommendations

CNSC staff reaffirm the recommendations presented to the Commission in Part 1:

- **Determine** that the CNSC has upheld the honour of the Crown and fulfilled its obligations to consult and, where appropriate, accommodate Indigenous peoples
- **Conclude** that OPG:
 - is qualified to carry on the activities authorized by the licence
 - will make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed
- **Authorize** OPG to construct a single BWRX-300 reactor at the DNNP site, subject to the conditions outlined in the proposed licence
- **Accept** OPG 's Financial Guarantee
- **Delegate** authority to CNSC staff for the administration of the regulatory hold points

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