Darlington Unit 2
CNSC Process for Return-to-Service

Public Meeting
February 20, 2019
CMD 19-M6

CNSC Staff Presentation
Darlington Nuclear Generating Station Status

- Units 1, 3, 4 – Operational
- Unit 2 shutdown in October 2016 for refurbishment
- Unit 2 return to service projected for December 2019

Scope:

- Overview of the CNSC regulatory oversight activities for the refurbishment and return to service of Darlington Unit 2
- Overview of the CNSC process for removal of Regulatory Hold Points (RHPs)
Objectives of the CNSC Regulatory Oversight for the Refurbishment Project

- Confirm that the refurbishment and return to service activities are being performed safely and in compliance with regulatory requirements.
- Confirm that improvements identified in the OPG’s Integrated Implementation Plan have been completed.
- Confirm that the systems, equipment, procedures, and qualified staff are available and ready for the unit return to service.
Background

Operating licence:
- Licence renewal hearing held in 2015
- Licence was renewed in 2016
- Licence period: January 2016 to November 2025

The licensing basis for the CNSC regulatory oversight includes:
- *Nuclear Safety Control Act*, Regulations
- Operating Licence
- Codes, Standards and CNSC Regulatory Documents
- OPG’s Integrated Implementation Plan (IIP) commitments
Licence Conditions for the Refurbishment Project

- LC 15.2 states: “The licensee shall implement a return to service plan for refurbishment.”

- LC 15.3 states: “The licensee shall implement the Integrated Implementation Plan.”

- LC 15.4 states: “The licensee shall obtain the approval of the Commission, or of a person authorized by the Commission [Executive Vice President (EVP)], prior to the removal of established regulatory hold points.”
Regulatory Hold Points

• The process of returning to service includes a phased approach for the removal of regulatory hold points, aligned with commissioning activities.

• Delegation of consent to remove regulatory hold points granted by the Commission to the Executive Vice-President and Chief Regulatory Operations Officer (EVP-CROO).

• The same approach was followed for previous refurbishment projects.
CNSC Compliance Plan for the Refurbishment of Darlington Unit 2

The CNSC compliance plan for the Darlington Refurbishment Project:

- Is planned and risk informed
- Incorporates lessons learned from previous projects
- Takes into account licensee’s return to service program
- Is adjusted to align with licensee’s refurbishment activities
The CNSC compliance plan addressed the 4 phases of the refurbishment project:

1. **Lead-in phase**: preparation activities for refurbishment (Complete)
2. **Component Removal phase**: removal of reactor core components (Complete)
3. **Installation phase**: installation of reactor core components (On-going)
4. **Lead-out phase**: including fuel load, system, structures and components commissioning, start-up of the unit (Planned)

**This year OPG will be entering the lead-out phase for return to service of Unit 2**
CNSC compliance verification activities include technical assessments, surveillance and inspections.

Total effort for refurbishment compliance verification activities is ~4500 days.

CNSC staff have completed 23 refurbishment focused inspections since 2016.

Inspections cover multiple safety and control areas (SCAs).

Compliance verification activities are planned and risk informed.
Return to Service Protocol

- Identifies IIP commitments, detailed pre-requisites and deliverables for the removal of each Regulatory Hold Point.
- Establishes schedule for OPG submissions and CNSC staff assessments.
- Incorporates lessons learned from previous projects.

Return to Service Protocol is well defined and managed
Return to Service – Improvements, Plant and Personnel

• To confirm that improvements identified in the Integrated Implementation Plan have been completed.
• To confirm that the systems, equipment, procedures, and qualified staff are available and ready for the unit return to service.
Progress – Integrated Implementation Plan for all Darlington Units

- The Integrated Implementation Plan (IIP) consists of 627 IIP commitments.
- OPG has completed 315 commitments of the IIP.

OPG is on track with completing their IIP commitments
Integrated Implementation Plan – Unit 2 Return to Service

- Total of 72 IIP commitments associated with Unit 2 Restart.
- Completion of Unit 2 IIP commitments are tracked through the Protocol.
- IIP commitments are associated with each Regulatory Hold Point.
- OPG has completed 38 IIP commitments as of January 2019.

Completion of IIP commitments for Unit 2 Restart are tracked through the Protocol
Pre-requisites for the Removal of each Regulatory Hold Point

**PEOPLE**

- Staffing levels adequate
- Operating procedures validated
- Specified training is complete and staff qualified

**PLANT**

- Required Systems, Structures, and Components (SSCs) are Available for Service
- SSCs procurement, installation and testing meet regulatory requirements
- Required analyses have been conducted
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Completion Assurance Document (CAD)

- For each Regulatory Hold Point, OPG will submit a Completion Assurance Document (CAD) to the CNSC.
- CAD will confirm that all pre-requisites, modification commissioning, testing, system restart activities and commitments have been completed.
- Any open items are identified, assessed and tracked in the CAD.
• CAD Rev 0 is provided to CNSC prior the scheduled removal of the regulatory hold point.
• Pre-requisites, commissioning, testing, system restart activities and commitments are provided to the CNSC as they are completed.
• CAD Rev 1 is provided to CNSC documenting all the work is complete and open items are addressed.
Process to release – recommendation to EVP-CROO

• CNSC Staff recommendation to the EVP-CROO at least 7 working days prior to OPG’s scheduled hold point removal date.
• The recommendation will be based on:
  – Compliance assessments
  – Surveillance and verification activities
  – Inspections
• Once all pre-requisites and regulatory commitments have been met, EVP-CROO will issue a Record of Consent, Including Reasons for Decision for the removal of each Regulatory Hold Point.
CNSC staff have processes for compliance oversight of the refurbishment project and monitoring of return to service activities.

Processes incorporate CNSC experience from previous refurbishments projects.

Removal of the Regulatory Hold Points requires that all pre-requisites and restart activities be completed and meet regulatory requirements.

OPG and CNSC staff will provide and update to the Commission following the return to service of Unit 2 at a meeting of the Commission, with public participation.

CNSC staff will continue to update the Commission on the status of the refurbishment project