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Written submission from Ontario Power Generation Inc. – Pickering Nuclear Generating Station

In the Matter of

Request from Ontario Power Generation Inc. to modify the Pickering Nuclear Generating Station integrated implementation plan (Revision 1)

Public Hearing - Hearing in writing based on written submissions

January 2021

Mémoire de Ontario Power Generation Inc. – Centrale nucléaire de Pickering

À l'égard de

Demande de Ontario Power Generation Inc. pour modifier le plan intégré de mise en œuvre, révision 1, pour la centrale nucléaire de Pickering

Audience publique - Audience fondée sur des mémoires

Janvier 2021

Canada

ONTARIO POWER GENERATION

1675 Montgomery Park Road, P.O. Box 160, Pickering, Ontario L1V 2R5

October 28, 2020

P-CORR-00531-06202

Mr. M. A. LEBLANC
Commission Secretary
Secretariat

Canadian Nuclear Safety Commission
280 Slater Street
Ottawa, Ontario
K1P 5S9

Dear Mr. Leblanc:

Pickering NGS: Request for Approval to Amend the Integrated Implementation Plan (IIP) to Extend Resolution Action G04-RS2-06-08

The purpose of this letter is to request Canadian Nuclear Safety Commission (CNSC) approval to amend the Pickering Periodic Safety Review 2 (PSR2) Integrated Implementation Plan (IIP) (Revision 1), which was accepted by the CNSC in Reference 1, in order to extend the completion date for resolution action G04-RS2-06-08.

This request is pursuant to licence condition 15.1 of the Pickering Power Reactor Operating Licence (PROL) 48.01/2028, which provides details of the IIP provided in Reference 2 and OPG's commitment to complete all IIP resolution actions by December 31, 2020. OPG will complete all the planned actions before the end of this year and will be able to request closure for all of the planned resolution actions, except for resolution action G04-RS2-06-08.

This global issue was identified through the PSR process (Reference 2) to look at reactor component and structures and demonstration of Fitness for Service (FFS) for the planned service life of the station. Fuel channels consist of pressure tubes which contain the fuel surrounded by heat transport water. The pressure tubes pass through the calandria through Calandria Tubes (CT). The Liquid Injection Shutdown System (LISS) nozzles are located in the calandria, perpendicular to the CTs. Pressure tubes and LISS nozzles sag over time. The fuel channels sag more than the LISS nozzles, and as a result, the outer tube of the fuel channel, the CT, could come into contact with the LISS nozzle, below it. OPG has well established programmatic controls under the Integrated Aging Management Program (IAMP), which is based on the combination of understanding of aging mechanisms and planned in-plant inspections and analysis. In order to investigate the possibility of CT-LISS contact, assessments are prepared utilizing data acquired during inspections.

The resolution action was to perform measurements, as required, of CT-LISS nozzle gaps on Units 5-8 to refine the gap closure rates. This new measurement data and

the analyses, updated as required, will demonstrate fitness for service and allow implementation of mitigation strategies if CT-LISS nozzle contact is predicted within the extended operating period. OPG has completed the Fitness for Service (FFS) assessment for the measurement between the Calandria Tube (CT) and the Liquid Injection Shutdown System (LISS) nozzle for all units except Unit 6. OPG will complete the measurement portion of IIP action assignment G04-RS2-06-08.1 for Unit 6 as scheduled, before the end of 2020.

The measurements taken during the Pickering Unit 6 2018 planned maintenance outage predicted the earliest contact time between a CT in the Q row and a LISS nozzle to be before the end of the commercial operation (Reference 3). In order to mitigate this predicted contact, a modification of the LISS nozzle will be completed during the 2020 Unit 6 planned maintenance outage (currently on-going) to increase the gap between the nozzle and the calandria tube (References 4 and 5). Measurements of the gap will then be taken and a preliminary assessment will be completed prior to Unit 6 restart. A final FFS assessment is required to be completed within 90 days of outage completion as required per CSA N285.4. In order to close IIP resolution action G04-RS2-06-08 before the end of 2020, OPG previously planned to provide the preliminary FFS assessment. Upon further review OPG have deemed it to be prudent to wait for the full FFS assessment as this will provide more precision in demonstrating safe operation to end of 2024 since the full FFS assessment will update the predictive model.

The delay in the closure of this IIP resolution action does not have any impact on the assurance of the safe operation of Pickering until 2024. As per normal practice, and adherence to CSA N285.4, Unit 6 is required to have a FFS assessment based on the results of the gap measurements. It is the timing of the Unit 6 planned maintenance outage near the end of the year, which results in the normal 90 day reporting period causing a delay past the original IIP completion date.
OPG is requesting an extension for IIP action G04-RS2-06-08 to April 23, 2021, as the full FFS assessment will be available after Unit 6 restart from the planned outage, which is scheduled to be completed by the end of 2020. All other remaining IIP actions are on track to be completed by the end of 2020, not including OPG's previous request in Reference 6.

OPG is requesting CNSC approval to extend IIP resolution action G04-RS2-06-08 by December 31, 2020 in keeping with OPG's commitment to close IIP actions by the end of 2020.

If you have any questions, please contact Sara Irvine, Manager, Pickering Regulatory Affairs at 289-314-3367.

Jon Franke
Senior Vice President
Pickering Nuclear

cc: A. Viktorov, Director, Pickering Regulatory Program Division, Ottawa
CNSC Pickering Regulatory Program Division
CNSC Records Office

References:

1. CNSC Letter, A. Viktorov to R. Lockwood, “Pickering NGS: CNSC Staff Acceptance of Pickering NGS Periodic Safety Review 2 (PSR2) Integrated Implementation Plan (IIP), Revision 1”, March 2, 2018, e-Doc 5470609, CD# P-CORR-00531-05333.

2. OPG Letter, R. Lockwood to A. Viktorov, “Pickering NGS Periodic Safety Review 2 – Submission of Integrated Implementation Plan Revision 1”, March 1, 2018, CD# P-CORR-00531-05311.

3. OPG Letter, R. Lockwood to A. Viktorov, “Pickering NGS – 2018 Unit 6 Planned Maintenance Outage – Submission of Calandria Tube to Liquid Injection Shutdown System Nozzle Gap Assessment”, July 30, 2018, CD# NK30-CORR-00531-07658.

4. OPG Letter, R. Lockwood to A. Viktorov, “Pickering Unit 6 – Update on CT-LISS Contact Mitigation Strategy”, September 30, 2019, CD# NK30-CORR-00531-07918.

5. CNSC Letter, A. Viktorov to R. Lockwood, “Pickering Unit 6 – Update on CT-LISS Contact Mitigation Strategy”, November 21, 2019, e-Doc 6045979, CD# NK30-CORR-00531-07965.

6. OPG Letter, J. Franke to M. Leblanc, “Pickering NGS: Request for Approval to Amend the Integrated Implementation Plan (IIP) to Remove Resolution Action G25-RS1-04-20”, October 6, 2020, CD# P-CORR-00531-06155.