

RS-20-008

10 CFR 50.90

February 24, 2020

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Response to Request for Additional Information for the License Amendment
Request to Change Technical Specifications to Increase Allowable MSIV Leakage
Rates and Revise Secondary Containment Surveillance

- References:
1. Letter from P.R. Simpson (Exelon Generation Company, LLC) to U.S. Nuclear Regulatory Commission, "Application to Increase Technical Specifications Allowable MSIV Leakage Rates and Revise Secondary Containment Surveillance Requirement 3.6.4.1.1," dated March 5, 2019 (ML19064B369)
 2. Email from K. Green (U.S. Nuclear Regulatory Commission) to R. Steinman (Exelon Generation Company, LLC), Subject: Request for Additional Information for Quad Cities Request to Revise Technical Specifications to Increase the MSIV leakage rate (L-2019-LLA-0045), dated January 31, 2020 (ML20031C833)

In the Reference 1 letter, Exelon Generation Company, LLC, (EGC) requested an amendment to Renewed Facility Operating License Nos. DPR-29 for Quad Cities Nuclear Power Station (QCNPS), Unit 1 and DPR-30 for QCNPS, Unit 2. The proposed change would increase the main steam isolation valve (MSIV) leakage rate limit for all four steam lines from 86 to 156 standard cubic feet per hour (scfh) for Unit 1 and from 86 to 218 scfh for Unit 2; credit the residual heat removal (RHR) drywell spray system and add a new Technical Specification (TS) 3.6.2.6, "Residual Heat Removal (RHR) Drywall Spray;" and adopt Technical Specification Task Force Traveler (TSTF) 551, "Revise Secondary Containment Surveillance Requirements."

The attachment contains the response to the EENB request for additional information (RAI) in Reference 2. Responses to the remainder of the questions in Reference 2 are planned to be submitted to the NRC by March 31, 2020.

EGC has reviewed the information supporting the finding of no significant hazards consideration, and the environmental consideration, that were previously provided to the NRC in Reference 1. The additional information provided in this submittal does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. In

addition, the information provided in this submittal does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

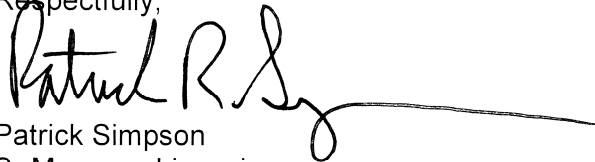
EGC is notifying the State of Illinois of this supplement to a previous application for a change to the operating license by sending a copy of this letter and its attachments to the designated State Official in accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b).

There are no regulatory commitments contained within this letter.

Should you have any questions concerning this letter, please contact Ms. Rebecca L. Steinman at (630) 657-2831.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 24th day of February 2020.

Respectfully,

A handwritten signature in black ink, appearing to read "Patrick R. Simpson", followed by a long horizontal flourish line.

Patrick Simpson
Sr Manager Licensing
Exelon Generation Company, LLC

Attachment: Response to NRC EENB Request for Additional Information

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector, Quad Cities Nuclear Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT
Response to NRC EENB Request for Additional Information

Regulatory Basis for EENB RAI:

Section 50.49(e)(1) of 10 CFR requires that the time-dependent temperature and pressure at the location of the electric equipment important to safety must be established for the most severe design basis accident during and following which this equipment is required to remain functional.

Section 50.49(e)(2) of 10 CFR requires that humidity during design basis accidents must be considered.

Section 50.49(e)(4) of 10 CFR requires that the radiation environment must be based on the type of radiation, the total dose expected during normal operation over the installed life of the equipment, and the radiation environment associated with the most severe design basis accident during or following which the equipment is required to remain functional.

Section 50.49(b)(2) of 10 CFR requires qualification of nonsafety-related electric equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions specified in subparagraphs (b)(1)(i)(A) through (C) of paragraph (b)(1) of 10 CFR 50.49 by the safety-related equipment.

EENB RAI Issue:

EGC stated that the environmental qualification (EQ) doses are not impacted due to the proposed change because the current EQ design basis does not include source term in the main steam lines downstream of the MSIVs. Additionally, EGC is crediting the drywell sprays to mitigate the consequences of a design basis accident. The drywell sprays are assumed to start 10 minutes following event initiation and continue for 4 hours. However, EGC did not provide an evaluation of the impact of the MSIV increased leakage rate on temperature, pressure, or humidity of electrical equipment.

It is also unclear as to whether EGC considered the impact of the proposed change on nonsafety-related equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions by the safety-related equipment.

EENB RAI

1. Provide an evaluation that shows that the temperatures, pressures, and humidity remain bounded by the existing environmental qualification for equipment and components impacted by the MSIV increased leakage rate.
2. Explain how you have assessed the impact of the proposed change on nonsafety-related equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions by the safety-related equipment.
3. Confirm whether any components are being added to the EQ equipment list to comply with 10 CFR 50.49 due to the proposed changes. If components are being added, describe the equipment qualification for the environmental conditions to which the components are expected to be exposed.

ATTACHMENT
Response to NRC EENB Request for Additional Information

Response to EENB RAI

1. The Quad Cities Nuclear Power Station Environmental Qualification (EQ) Program already includes evaluation of spray and assumes an accident humidity inside the drywell of 100%. Therefore, the existing EQ assessment already covers the inclusion of drywell spray in the loss of coolant accident dose assessment.

The MSIVs are designed to close and be leak-tight during the worst conditions of pressure, temperature, and steam flow following a break in the main steam line outside containment. The equipment and components potentially impacted by the increased main steam isolation valve (MSIV) leak rate are located in the main steam tunnel and turbine building, downstream of the MSIVs. The normal service environmental conditions in main steam tunnel or turbine building are due to the fluid flowing through the main steam lines when the MSIVs are open and thus not impacted by allowing increased leakage past the closed valve. The bounding accident temperature and pressure profiles in the main steam tunnel and turbine building are associated with a high energy line break (HELB) in the steam tunnel. When the increased MSIV leakage is considered, the HELB temperature and pressure profile in these zones continues to bound the LOCA profile. Additionally, the accident humidity in these zones is already assumed to be 100%. Therefore, the proposed increase in allowable MSIV leakage would contribute no additional environmental impact to equipment qualified for use in the main steam tunnel or the turbine building.

2. Because there is no change to EQ design basis temperatures, pressure, humidity, or radiation values, the proposed increase in MSIV leakage has no impact on nonsafety-related equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions by the safety-related equipment.
3. No components are being added to the EQ equipment list due to the proposed increase in allowable MSIV leakage.