UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 4, 2014

Mr. Michael P. Gallagher
Vice President, License Renewal Projects
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION, SET 29 (TAC NOS. MF1879, MF1880, MF1881, AND MF1882)

Dear Mr. Gallagher:

By letter dated May 29, 2013, Exelon Generation Company, LLC, submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating licenses NPF-37, NPF-66, NPF-72, and NPF-77 for Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2, respectively, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with John Hufnagel, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-4115 or e-mail Lindsay.Robinson@nrc.gov.

Sincerely,

/RA/

Lindsay R. Robinson, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-454, 50-455, 50-456, and 50-457

Enclosure:
Request for Additional Information

cc w/encl: Listserv

June 4, 2014

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Vice President, License Renewal Projects
Exelon Generation Company, LLC
200 Exelon Way
Kennett Square, PA 19348

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Letter to M.P. Gallagher from Lindsay R. Robinson dated June 4, 2014

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE BYRON STATION, UNITS 1 AND 2, AND BRAIDWOOD STATION, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION, SET 29 (TAC NOS. MF1879, MF1880, MF1881, AND MF1882)

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BYRON STATION, UNITS 1 AND 2
AND BRAIDWOOD STATION, UNITS 1 AND 2
LICENSE RENEWAL APPLICATION
REQUEST FOR ADDITIONAL INFORMATION, SET 29
(TAC NOS. MF1879, MF1880, MF1881, AND MF1882)

RAI B.2.1.5-1a

Applicability:

Byron Station (Byron) and Braidwood Station (Braidwood), all units

Background:

By letter dated January 13, 2014, the applicant responded to request for additional information (RAI) B.2.1.5-1, which addressed loss of material due to wear of control rod drive mechanism (CRDM) nozzles resulting from interactions with CRDM nozzle thermal sleeves. The applicant stated that it is planning to demonstrate, using analysis, that the CRDM nozzle wear will not exceed a minimum safe value such that examinations will not be required during the period of extended operation (PEO). The applicant further stated that when completed, the analyses will include a detailed ASME Code evaluation of the CRDM housing with a reduced wall thickness using the bounding CRDM loads and transients. In addition, all ASME Code stress categories will be evaluated utilizing a finite element analysis and will explicitly consider all conditions to which the CRDM housing is subjected during normal and upset conditions.

Issue:

The staff cannot determine the adequacy of the applicant's analysis since this analysis has yet to be completed. Additional information is necessary to confirm that the applicant's analysis has an adequate technical basis and that analytical results are acceptable for managing CRDM nozzle wear.

Request:

1. Describe the technical basis of the analysis and specific references for the acceptance criteria of the analysis (e.g., ASME Code Section III Edition and paragraphs and current license basis document sections). As part of the response, confirm whether the acceptance criteria adequately address the design, normal, upset, emergency, faulted, testing, and cyclic (i.e., fatigue analysis) conditions in updated final safety analysis report (UFSAR) Section 3.9 and its subsections.

2. Upon completion of the CRDM nozzle wear analysis, provide the results confirming that the wear indications meet the acceptance criteria discussed in Request Part 1.

   If the analysis finds that the acceptance criteria cannot be met for the maximum possible wear depth of 0.1075 inches, clarify whether volumetric examinations will be performed to monitor the wear depths for adequate aging management.

3. Provide any necessary updates to the license renewal application (LRA), consistent with the applicant's response to Request Parts 1 and 2 (e.g., revisions to the time-limited aging analyses and UFSAR supplements in the LRA).

ENCLOSURE

RAI B.2.1.5-2a

Applicability:

Byron and Braidwood

Background:

By letter dated January 13, 2014, the applicant responded to RAI B.2.1.5-2, which addressed loss of material due to wear of CRDM nozzle thermal sleeves. The applicant indicated that based on the current examination results at Byron and Braidwood, none of the evaluated thermal sleeve indications approach the minimum wall thickness. The applicant also stated that as a result of the initial visual examinations at each unit, the five thermal sleeves with the worst wear were selected to be examined with ultrasonic testing (UT) in order to obtain measurements of the wear indications. In addition, the applicant indicated the applicant's ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD, program will monitor the depths of these worst wear indications for aging management.

Issue:

It is not clear to staff that the initial examinations detected the worst wear locations because the applicant's response did not specifically state where on the thermal sleeves the ~~worst~~ wear was located. In addition, the applicant's response does not include revisions to the UFSAR supplement (LRA Section A.2.1.1) for the ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD, program to specify the inspections of the thermal sleeves, as described in the applicant's response to RAI B.2.1.5-2.

Request:

1. Describe the locations of the thermal sleeve wear to confirm that the initial visual examinations were capable of detecting the worst wear indications.

2. Justify why the applicant's response does not include revisions to the UFSAR supplement (LRA Section A.2.1.1) to identify the additional inspections of the thermal sleeves. Alternatively, revise the UFSAR supplement to identify the additional inspections of the thermal sleeves.