[7590-01-P]

NUCLEAR REGULATORY COMMISSION

[Docket Nos. STN 50-454, STN 50-455, STN 50-456, and STN 50-457;

NRC-2018-0081]

Exelon Generation Company, LLC

AGENCY: Nuclear Regulatory Commission.

ACTION: Director's decision under 10 CFR 2.206; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) has issued a director's decision in response to a petition dated February 8, 2017, filed by Mr. Barry Quigley (the petitioner), requesting that the NRC take action with regard to Exelon Generation Company, LLC (Exelon or the licensee). The petitioner's requests and the director's decision are included in the **SUPPLEMENTARY INFORMATION** section of this document.

DATES: The director's decision was issued on April 24, 2018.

ADDRESSES: Please refer to Docket ID **NRC-2018-0081** when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document using any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID **NRC-2018-0081**. Address questions about NRC dockets to Jennifer Borges; telephone: 301-287-9127; e-mail: Jennifer.Borges@nrc.gov. For technical questions, contact the individual listed in the **FOR FURTHER INFORMATION CONTACT** section of this document.

- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at http://www.nrc.gov/reading-rm/adams.html. To begin the search, select "ADAMS Public Documents" and then select "Begin Web-based ADAMS Search." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr.resource@nrc.gov. The ADAMS accession number for each document referenced (if it is available in ADAMS) is provided the first time that it is mentioned in this document. In addition, for the convenience of the reader, the ADAMS accession numbers are provided in a table in the "Availability of Documents" section of this document.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

FOR FURTHER INFORMATION CONTACT: Joel Wiebe, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, telephone: 301-415-6606; e-mail: Joel.Wiebe@nrc.gov.

SUPPLEMENTARY INFORMATION: The text of the director's decision is attached.

Dated at Rockville, Maryland, this 26th day of April, 2018.

For the Nuclear Regulatory Commission.

Joel S. Wiebe, Senior Project Manager,
Plant Licensing Branch III,
Division of Operating Reactor Licensing,
Office of Nuclear Reactor Regulation.

Attachment – Director's Decision DD-18-01

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

In the Matter of Exelon Generation Company, LLC

Braidwood Station, Unit Nos. 1 and 2
Docket Nos. STN 50-456, 50-457
License Nos. NPF-72, NPF-77

Byron Station, Unit Nos. 1 and 2
Docket Nos. STN 50-454, 50-455
License Nos. NPF-37, NPF-66

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. Introduction

By e-mail to Mr. Victor M. McCree, Executive Director for Operations, dated February 8, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17061A127), Mr. Barry Quigley filed a petition under Title 10, "Energy," of the *Code of Federal Regulations* (10 CFR) 2.206, "Requests for Action under this Subpart." Attachments to the petition are located at ADAMS Accession Nos. ML17061A126, ML17061A125, and ML17061A124. The petitioner requested that the U.S. Nuclear Regulatory Commission (NRC or the Commission) take the following actions against Exelon Generation Company, LLC (Exelon), the licensee for Byron Station, Unit Nos. 1 and 2, and Braidwood Station, Units 1 and 2:

1. Issue a violation under 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power

Plants and Fuel Reprocessing Plants," Criterion III, "Design Control," for deficiencies in the analysis of record (AOR) for the main steam isolation valve (MSIV) room pressurization following a high-energy line break (HELB).

2. Issue a violation under 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for failure to update the AOR in a timely manner.
3. Require Exelon to show that the consequences of the secondary missiles resulting from MSIV room pressurization do not have adverse consequences.
4. Issue a Demand for Information under 10 CFR 2.204, "Demand for Information," to compare and contrast the behavior of Exelon management as described in the petition with the NRC's policy statement on the attributes of a safety-conscious work environment (SCWE).
5. Use Exelon's response to Item 4 above as a basis on which to determine whether to issue a "chilling effects" letter.

As the basis for the request, the petitioner stated the following:

1. (a) - Break enthalpies used in the MSIV room pressurization AOR are actually the thermodynamic internal energy of the steam, not the enthalpy. Because, in the range of interest, the internal energy is about 13 percent less than the enthalpy, the energy flow to the areas of concern is nonconservative.
   (b) - Steam flow from secondary piping is neglected.
2. Corrective actions to resolve an issue in the AOR are long overdue (8 years) and improperly tracked.
3. A proposed revision to the AOR shows that the MSIV room roof slabs will be ejected by the high pressures in the MSIV rooms becoming potential missiles.
4. Management dismissed information in the updated final safety evaluation report (UFSAR) that supported the concerns about the AOR as "excessive detail" and

directed personnel to remove the information. Management dismissed UFSAR internal inconsistency related to the "Break Exclusion Zone" without discussion or review and stated that the information supporting the concern could be deleted as an UFSAR cleanup item. Recently, there was an operability concern for which engineering management maintained a position of operability in the face of conflicting information. The information that engineering management relied on to support operability was demonstrably irrelevant.

The petitioner met with the Office of Nuclear Reactor Regulation (NRR) Petition Review Board (PRB) on April 13, 2017, to clarify the basis for the petition. The NRC is treating the transcript of this meeting (ADAMS Accession No. ML17111A774) as a supplement to the petition. In its acknowledgement letter dated July 17, 2017 (ADAMS Accession No. ML17125A245), the NRC informed the petitioner that Items 1, 2, 4, and 5 were accepted for review under 10 CFR 2.206 and that the agency had referred the issues in the petition to NRR for appropriate action. This letter states that Item 3 does not request enforcement action and, therefore, does not meet the criteria for acceptance for review under 10 CFR 2.206. However, the NRC informed the petitioner that the item is likely to be resolved when reviewing activities to address the AOR under Item 1.

By letter dated July 26, 2017 (ADAMS Accession No. ML17166A362), the NRC requested that Exelon provide a voluntary response to the petition. By letter dated September 1, 2017 (ADAMS Accession No. ML17255A824), Exelon provided its voluntary response.

II. Discussion

1. Issue a violation under 10 CFR Part 50, Appendix B, Criterion III, for deficiencies in the AOR for the MSIV room pressurization following an HELB.

The petitioner's basis and the licensee's September 1, 2017, voluntary response letter both identify errors in calculation 3C8-0282-001, Revision 3. The licensee stated in its voluntary response letter that calculation 3C8-0282-001 is the design-basis analysis for the structural design of the MSIV house and the main steam tunnel. The regulation under 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that the licensee provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. The NRC Region III staff conducted inspections at the Byron and Braidwood Stations between October 30 and November 16, 2017. The inspectors identified that as of October 22, 1996, and continuing through the date of the NRC inspections, the licensee failed to verify that Design Analysis 3C8-0282-001, Revision 3, which was the AOR addressing a postulated HELB in the safety-related main steam safety valve (MSSV) rooms [the petitioner and the licensee used the label MSIV house or room], would not cause a structural failure since it failed to apply worst-case environmental loading. The NRC Inspection Reports 05000454/455-2017-010 for Byron Station and 05000456/457-2017-008 for Braidwood Station, dated December 15, 2017 (ADAMS Accession Nos. ML17349A917 and ML17349A894, respectively), each identify a non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control."

2. Issue a violation under 10 CFR Part 50, Appendix B, Criterion XVI, for failure to update the AOR in a timely manner.

The petitioner's basis states that although the errors regarding the wrong break enthalpies in calculation 3C8-0282-001, Revision 3, were documented on June 30,

2008, in Issue Report 792213, “MSLB Calc[ulation] Energy Release Error,” the analysis still contains the nonconservative break enthalpies 8 years later. Exelon’s voluntary response letter agrees that Issue Report 792213 for Byron Station and the related Issue Report 792215 for Braidwood Station were documented on June 30, 2008. Exelon’s voluntary response letter shows that it issued a contract with a vendor to revise calculation 3C8-0282-001, Revision 3, in February 2013; 5 years after identification of the error. In November 2013, the vendor provided a draft copy of a revision to calculation 3C8-0282-001 to Exelon for review. Currently, Exelon still has the analysis and proposed plant modifications under review to correct the analysis.

The regulation under 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that measures shall be established to assure that conditions adverse to quality, such as non-conformances, are promptly identified and corrected. The NRC Region III staff conducted inspections at the Byron and Braidwood Stations between October 30 and November 16, 2017. The inspectors identified that as of the dates of NRC inspections at Byron and Braidwood Stations, the licensee failed to promptly correct errors in Design Analysis 3C8-0282-001, Revision 3, for a main steam line break in the safety-related MSSV rooms [the petitioner and the licensee used the label MSIV house or room] and steam tunnels that were identified on June 30, 2008. The NRC Inspection Reports 05000454/455-2017-010 for Byron Station and 05000456/457-2017-008 for Braidwood Station, dated December 15, 2017, each identify a NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action.”

3. Require Exelon to show that the consequences of the secondary missiles resulting from MSIV room pressurization do not have adverse consequences.

The July 17, 2017, acknowledgement letter informed the petitioner that this item did not meet the criteria for review under 10 CFR 2.206 because it does not request

enforcement action, as specified in Management Directive 8.11, “Review Process for 10 CFR 2.206 Petitions” (MD 8.11). However, the licensee and NRC have taken action that addresses the issue raised by the petitioner. In September 2017, the licensee initiated operability evaluations (Operability Evaluation 17-002, Revision 0, for Braidwood Station and Operability Evaluation 17-001, Revision 0, for Byron Station) to address the consequences of secondary missiles from the MSIV room pressurization and has determined that no equipment safety functions are affected by potential missiles. During inspections conducted at Byron Station (Inspection Reports 05000454/455-2017-003 (ADAMS Accession No. ML17306A639) and 05000454/455-2017-010) and Braidwood Station (Inspection Reports 05000456/457-2017-003 (ADAMS Accession No. ML17306A664) and 05000456/457-2017-008), the NRC reviewed the licensee’s revisions to the applicable operability evaluations and did not identify any concerns, but did identify NCVs of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the failure to identify design deficiencies involving secondary missiles from the MSSV room pressurization and NCVs of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the failure to correct the design deficiencies.

4. Issue a “Demand for Information” under 10 CFR 2.204, to compare and contrast the behavior of Exelon management as described in the petition with the NRC’s policy statement on the attributes of an SCWE.

   As described in the NRC Enforcement Manual (ADAMS Accession No. ML102630150), a demand for information (DFI) is a formal request made to a licensee or applicant to obtain information for the NRC staff to determine whether an Order should be issued to modify, suspend, or revoke the license, or whether to take other enforcement action. The PRB determined that issuance of a DFI in this circumstance was not necessary to evaluate the SCWE concerns expressed in the petition.

Consistent with MD 8.11, the NRC's letter dated July 26, 2017, requested that Exelon provide a voluntary response to the concerns raised in the petition. Exelon's September 1, 2017, response, in part, provided the results of its evaluation of the SCWE at Byron Station. Exelon's evaluation included interviews with Braidwood Station personnel that were involved with the activities that the petitioner described in the petition.
The evaluation concluded that the actions taken and behaviors demonstrated by Exelon management in response to the issues and activities cited in the petition dated February 8, 2017, demonstrate a healthy SCWE.

The NRC conducted an inspection at Byron Station that ended on August 25, 2017 (Inspection Report 05000454/455-2017-007 (ADAMS Accession No. ML17276B174) that, in part, assessed the licensee's SCWE at Byron Station. Information obtained from interviews and focus groups (including with engineering personnel) indicated that an environment was established where licensee personnel felt free to raise nuclear safety issues without fear of retaliation. Licensee personnel were generally aware of and familiar with the corrective action program (CAP) and other processes, including the Employee Concerns Program (ECP) and the NRC's allegation process, through which concerns could be raised. In addition, a review of the types of issues in the ECP indicated that the licensee's staff members were appropriately using the CAP and ECP to identify issues. The inspection did not identify any examples where there was retaliation for raising nuclear safety issues. Documents regarding surveys and monitoring of the safety culture and SCWE generally supported the conclusions from the interviews. The inspection did not identify any chilling effect or impediment to the establishment of an SCWE at Byron Station.

5. Use Exelon's response to Item 4 above as a basis on which to determine whether to issue a "chilling effects" letter.

A chilling effect letter is a regulatory tool identified in the NRC Allegations Manual (ADAMS Accession No. ML17003A227) that the NRC uses to ensure that licensees are taking appropriate actions to foster a workplace environment that encourages employees to raise safety concerns and to feel free to do so without fear of retaliation, referred to as an SCWE. A chilling effect letter may be appropriate when there are indications of a chilled work environment, but no discrimination concern has been substantiated. Neither Exelon's voluntary response nor NRC's inspection at Byron Station, as discussed in Item 4, identified evidence of a chilled environment at the Byron Station.

III. Conclusion

The NRC staff conducted inspections at the Byron Station and Braidwood Station that assessed the licensee's compliance with the regulations under 10 CFR Part 50, Appendix B, Criterion III, "Design Control," and Criterion XVI, "Corrective Action," related to the adequacy of the AOR for the structural design of the MSIV house and the main steam tunnel, and took enforcement action as outlined in the inspection reports identified above. The NRC staff requested that the licensee evaluate the SCWE concerns expressed in the petition, and conducted an inspection that assessed the licensee's SCWE at Byron Station. Based on the licensee's voluntary response and the results of the inspection, the NRC staff did not identify challenges to the licensee's SCWE or evidence of a chilled environment at the Byron Station and, therefore, determined that issuance of a chilling effect letter was not warranted. Because these actions address the underlying concerns raised in requests 1, 2, 4, and 5 of the petition, the petition is granted in part.

As provided in 10 CFR 2.206(c), a copy of this director's decision will be filed with the Secretary of the Commission for review. As provided by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this 24th day of April, 2018.

For the Nuclear Regulatory Commission.

Brian E. Holian, Acting Director
Office of Nuclear Reactor Regulation

[FR Doc. 2018-09210 Filed: 5/1/2018 8:45 am; Publication Date: 5/2/2018]