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

April 30, 2014

Mr. Michael J. Pacilio
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT NO. 1; DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1 AND 2; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 2, AND 3; AND QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2 - PROPOSED ALTERNATIVE TO UTILIZE CODE CASE N-649, "ALTERNATIVE REQUIREMENTS FOR IWE-5240 VISUAL EXAMINATION SECTION XI, DIVISION 1" (TAC NOS. MF2817, MF2818, MF2819, MF2820, MF2821, MF2822, MF2823, MF2824, MF2825, MF2826, MF2827, MF2828, MF2829, MF2830)

Dear Mr. Pacilio:

By letter dated September 25, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13270A060), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request to the U.S. Nuclear Regulatory Commission (NRC) to use alternative requirements to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," at Byron Station, Unit Nos. 1 and 2; Clinton Power Station, Unit No. 1; Dresden Nuclear Power Station, Units 2 and 3; Lasalle County Station, Units 1 and 2; Limerick Generating Station, Units 1 and 2; Oyster Creek Nuclear Generating Station; Peach Bottom Atomic Power Station, Units 2, and 3; and Quad Cities Nuclear Power Station, Units 1 and 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the licensee requested to use proposed alternative ASME Code Case N-649, "Alternative Requirements for IWE-5240 Visual Examination," to address the requirements for visual examination during post repair pressure tests of portions of steel containments or steel liners of concrete containments affected by repair/replacement on the basis that the alternative provides an acceptable level of quality and safety.

The NRC staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) and is in compliance with the ASME Code, Section XI, requirements. All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Joel S. Wiebe, Senior Project Manager, at (301) 415-6606 or via e-mail at Joel.Wiebe@nrc.gov.

Sincerely,

Travis L. Tate, Chief
Plant Licensing III-2 and
Planning and Analysis Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455, 50-461, 50-237, 50-249, 50-373, 50-374, 50-352, 50-353, 50-219, 50-277, 50-278, 50-254, and 50-265

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

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

# SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

# PROPOSED ALTERNATIVE TO UTILIZE ASME CODE CASE N-649

# EXELON GENERATION COMPANY, LLC

# BYRON STATION, UNIT NOS. 1 AND 2; CLINTON POWER STATION, UNIT 1; DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3; LASALLE COUNTY STATION, UNITS 1 AND 2; LIMERICK GENERATING STATION, UNITS 1 AND 2; OYSTER CREEK NUCLEAR GENERATING STATION; PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3; AND QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

# DOCKET NOS. 50-455, 50-461, 50-237, 50-249, 50-373, 50-374, 50-352, 50-353, 50-219, 50-277, 50-278, 50-254, and 50-265

## 1.0 INTRODUCTION

By letter dated September 25, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13270A060), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request to use alternative requirements to the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," for 14 units currently using the 2001 edition of the ASME Code (Section 2.0 of this safety evaluation (SE) lists the applicable units). The licensee requested to use ASME Code Case N 649, "Alternative Requirements for IWE 5240 Visual Examination," to address the requirements for visual examination during post repair pressure tests of portions of steel containments or steel liners of concrete containments affected by repair/replacement.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), the licensee requested to use the proposed alternative on the basis that the alternative provides an acceptable level of quality and safety.

## 2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components must meet the requirements set forth in the ASME Code, Section XI, to the extent practical. The regulations

require that inservice examination of components and system pressure tests comply with the requirements in the latest edition and addenda of the ASME Code, Section XI, incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the inspection interval. The applicable ASME, Section XI, Code of Record, for the second 10-year ISI intervals at the Exelon fleet units listed below is the 2001 Edition through 2003 Addenda.

**Applicable Units and Associated IWE ISI Intervals**

| Plant | ASME Code Edition | Start of Second IWE ISI Interval | End of Second IWE ISI Interval | Containment Type |
|---|---|---|---|---|
| Byron Station, Unit Nos. 1 and 2 | 2001 Edition, through 2003 Addenda | January 16, 2006 | July 15, 2016 | Post-tensioned concrete with steel liner |
| Clinton Power Station, Unit 1 | 2001 Edition, through 2003 Addenda | September 10, 2008 | September 9, 2018 | Mark III reinforced concrete with steel liner |
| Dresden Nuclear Power Station, Units 2 and 3 | 2001 Edition, through 2003 Addenda | September 9, 2008 | September 8, 2018 | Mark I steel containment |
| LaSalle County Station, Units 1 and 2 | 2001 Edition, through 2003 Addenda | October 1, 2007 | September 30, 2017 | Mark II post-tensioned concrete with steel liner |
| Limerick Generating Station, Units 1 and 2 | 2001 Edition, through 2003 Addenda | February 1, 2007 | January 31, 2017 | Mark II reinforced concrete with steel liner |
| Oyster Creek Nuclear Generating Station | 2001 Edition, through 2003 Addenda | September 10, 2009 | September 9, 2019 | Mark I steel containment |
| Peach Bottom Atomic Power Station, Units 2 and 3 | 2001 Edition, through 2003 Addenda | November 5, 2008 | November 4, 2018 | Mark I steel containment |
| Quad Cities Nuclear Power Station, Units 1 and 2 | 2001 Edition, through 2003 Addenda | September 9, 2008 | September 8, 2018 | Mark I steel containment |

The ISI of ASME Code Class 1, 2, and 3, components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by 10 CFR 50.55a(g). Further, 10 CFR 50.55a(a)(3)(i) states, in part, that alternatives to the requirements of paragraph (g) may be used when authorized by the NRC, if the applicant demonstrates that the proposed alternative will provide an acceptable level of quality and safety.

## 3.0 TECHNICAL EVALUATION

### 3.1 Licensee's Alternative Request

ASME Code, Section XI, Subsection IWE, Paragraph IWE-5220, "System Pressure Tests: Tests Following Repair/Replacement Activities," requires, in part, that, "repair/replacement activities performed on the pressure retaining boundary of Class MC or Class CC components shall be subjected to a pneumatic leakage test in accordance with the provisions of Title 10, Part 50 of the Code of Federal Regulations, Appendix J, Paragraph IV.A." Paragraph IWE 5240, "System Pressure Tests: Visual Examination," requires that, "during the pressure test required by IWE-5220, a detailed visual examination (IWE-2310) shall be performed on areas affected by repair/ replacement activities." ASME Code, Section XI, Code Case N-649, "Alternative Requirements for IWE-5240 Visual Examination," states that, "following a repair/replacement activity affecting the containment pressure boundary, when a pressure test (Type A, Type B, or Type C) is performed to verify the leak tight integrity of the affected pressure boundary, visual test (VT) 3 visual examination (1989 Edition through the 1995 Edition with 1997 Addenda) or general visual examination (1998 Edition through the 1998 Edition with the 2000 Addenda) shall be performed during or after the pressure test on the areas affected by the repair/replacement activity."

Paragraph IWE-5240 requires a detailed visual examination be performed on areas affected by activities during a post repair pressure test. However, the licensee stated that the IWE-5240 visual examination cannot be performed because the containment liners/shells are inaccessible during the post repair pressure tests (i.e., personnel are not able to be inside the containment during the pressure test). Therefore, the licensee requested to use Code Case N-649 as an alternative to the requirements of Paragraph IWE-5240. ASME Code Case N-649 allows the required visual examination to be performed during or after the pressure test. The licensee noted that the inability to perform of the IWE-5240 requirement was not addressed in the ASME Code until the 2004 Edition through 2006 Addenda was issued.

In this alternative request, the licensee stated that the "Applicability Index for Section XI Cases," contained in the 2001 Edition of the ASME Code, "Code Cases: Nuclear Components," states that ASME Code Case N-649 is applicable up to and including the 1998 Edition with the 2000 Addenda of ASME Section XI. The Edition/Addenda referenced in the Code Case text itself also ends at the 1998 Edition with the 2000 Addenda. The licensee also stated that the requirements of Paragraph IWE-5240 are identical in the 1998 Edition with the 2000 Addenda and the 2001 Edition through the 2003 Addenda. In the alternative request, the licensee requested that the applicability of ASME Code Case N-649 be extended to the 2001 Edition through the 2003 Addenda of the ASME Code for the remainder of the second 10-year ISI intervals for the units listed in Section 2 of this SE.

### 3.2 NRC Staff Evaluation

The NRC staff determined that the steel containment liners/shells will be inaccessible during post repair pressure tests because either personnel will not be able to be inside containment during a Type A integrated leak rate test (i.e., the pressure test), or the pressure testing rig will make repaired areas inaccessible for visual examination during a local leak rate test. To address this limitation, ASME Code Case N-649 was issued to allow the required post repair visual examination to be performed during or after the pressure test if the repaired area is

inaccessible during the pressure test. The NRC staff reviewed the requirements of paragraph IWE-5240 in the 1998 Edition through 2000 Addenda and the 2001 Edition through the 2003 Addenda of the ASME Code Section XI, and found that they are identical. The staff has previously identified ASME Code Case N-649 as acceptable for use with no conditions or limitations as stated in NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 16. Based on the consistency of the ASME Code, Section XI, versions over the time period in question, the NRC staff concluded that the use of Code Case N-649 is acceptable and that the proposed alternative provides an acceptable level of quality and safety for all of the Units listed in Section 2 of this SE.

## 4.0 CONCLUSION

As set forth above, the NRC staff determined that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(i) and is in compliance with the ASME Code, Section XI, requirements. All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

The NRC staff authorizes this request for the Exelon units identified in Section 2 of this SE, for the respective second ISI intervals.

Principal Contributor: B. Lehman

Date of issuance: April 30, 2014

If you have any questions, please contact Joel S. Wiebe, Senior Project Manager, at (301) 415-6606 or via e-mail at Joel.Wiebe@nrc.gov.

Sincerely,

***/RA/***

Travis L. Tate, Chief
Plant Licensing III-2 and
Planning and Analysis Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. STN 50-454, STN 50-455, 50-461, 50-237, 50-249, 50-373, 50-374, 50-352, 50-353, 50-219, 50-277, 50-278, 50-254, and 50-265

Enclosure:
Safety Evaluation

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