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10 CFR 50.55a

RS-11-164 RA-11-078 TMI-11-145

October 7, 2011

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

> Braidwood Station, Units 1 and 2 Facility Operating License Nos. NPF-72 and NPF-77 NRC Docket Nos. STN 50-456 and STN 50-457

> Byron Station, Units 1 and 2 Facility Operating License Nos. NPF-37 and NPF-66 NRC Docket Nos. STN 50-454 and STN 50-455

Clinton Power Station, Unit 1 Facility Operating License No. NPF-62 NRC Docket No. 50-461

Dresden Nuclear Power Station, Units 2 and 3 Renewed Facility Operating License Nos. DPR-19 and DPR-25 <u>NRC Docket Nos. 50-237 and 50-249</u>

LaSalle County Station, Units 1 and 2 Facility Operating License Nos. NPF-11 and NPF-18 NRC Docket Nos. 50-373 and 50-374

Limerick Generating Station, Units 1 and 2 Facility Operating License Nos. NPF-39 and NPF-85 NRC Docket Nos. 50-352 and 50-353

Oyster Creek Nuclear Generating Station Renewed Facility Operating License No. DPR-16 NRC Docket No. 50-219

Peach Bottom Atomic Power Station, Units 2 and 3 Renewed Facility Operating License Nos. DPR-44 and DPR-56 <u>NRC Docket Nos. 50-277 and 50-278</u> Proposed Alternative to Utilize Code Case N-789 October 7, 2011 Page 2

> 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

Three Mile Island Nuclear Generating Station, Unit 1 Renewed Facility Operating License No. DPR-50 NRC Docket No. 50-289

Subject: Proposed Alternative to Utilize Code Case N-789, "Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate Energy Carbon Steel Piping for Raw Water Service, Section XI, Division 1"

In accordance with 10 CFR 50.55a(a)(3)(i), Exelon Generation Company, LLC (Exelon) is requesting a proposed alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," on the basis that the proposed alternative provides an acceptable level of quality and safety. Specifically, this proposed alternative concerns the use of Code Case N-789 for Class 2 and 3 moderate-energy raw water piping system repairs resulting from degradation mechanisms such as erosion, corrosion, cavitation, or pitting.

There are no regulatory commitments contained in this letter.

Exelon requests your review and approval of this fleet request by October 7, 2012.

If you have any questions, please contact Tom Loomis (610) 765-5510.

Respectfully,

Michael D. Jesse Director - Licensing and Regulatory Affairs Exelon Generation Company, LLC

Attachment: Proposed Alternative to Utilize Code Case N-789

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cc: **Regional Administrator - NRC Region I Regional Administrator - NRC Region III** NRC Senior Resident Inspector - Braidwood Station NRC Senior Resident Inspector - Byron Station NRC Senior Resident Inspector - Clinton Power Station NRC Senior Resident Inspector - Dresden Nuclear Power Station NRC Senior Resident Inspector - LaSalle County Station NRC Senior Resident Inspector - Limerick Generating Station NRC Senior Resident Inspector - Oyster Creek Nuclear Generating Station NRC Senior Resident Inspector - Peach Bottom Atomic Power Station NRC Senior Resident Inspector - Quad Cities Nuclear Power Station NRC Senior Resident Inspector - Three Mile Island Nuclear Generating Station, Unit 1 NRC Project Manager - Braidwood and Byron Stations NRC Project Manager - Clinton Power Station NRC Project Manager - Dresden Nuclear Power Station NRC Project Manager - LaSalle County Station NRC Project Manager - Limerick Generating Station NRC Project Manager - Oyster Creek Nuclear Generating Station NRC Project Manager - Peach Bottom Atomic Power Station NRC Project Manager - Quad Cities Nuclear Power Station NRC Project Manager - Three Mile Island Nuclear Generating Station, Unit 1

Attachment Proposed Alternative to Utilize Code Case N-789

1. ASME Code Component(s) Affected:

All ASME Class 2 and 3 moderate energy carbon steel raw water piping systems.

2. Applicable Code Edition and Addenda:

PLANT	INTERVAL	EDITION	START	END
Braidwood Station, Units 1 and 2	Third	2001 Edition, through 2003 Addenda	July 29, 2008	July 28, 2018
			October 17, 2008	October 16, 2018
Byron Station, Units 1 and 2	Third	2001 Edition, through 2003 Addenda	January 16, 2006	July 15, 2016
Clinton Power Station	Third	2004 Edition	July 1, 2010	June 30, 2020
Dresden Nuclear Power Station, Units 2 and 3	Fourth	1995 Edition, through 1996 Addenda	January 20, 2003	January 19, 2013
LaSalle County Stations, Units 1 and 2	Third	2001 Edition, through 2003 Addenda	October 1, 2007	September 30, 2017
Limerick Generating Station, Units 1 and 2	Third	2001 Edition, through 2003 Addenda	February 1, 2007	January 31, 2017
Oyster Creek Nuclear Generating Station	Fourth	1995 Edition, through 1996 Addenda	October 15, 2002	October 14, 2012
Peach Bottom Atomic Power Station, Units 2 and 3	Fourth	2001 Edition, through 2003 Addenda	November 5, 2008	November 4, 2018
Quad Cities Nuclear Power Station, Units 1 and 2	Fourth	1995 Edition, through 1996 Addenda	March 10, 2003	April 1, 2013
Three Mile Island Nuclear Station, Unit 1	Fourth	2004 Edition	April 20, 2011	April 19, 2022

3. Applicable Code Requirement:

ASME Code, Section XI, IWA-4400 of the 1995 Edition through 1996 Addenda, 2001 Edition through 2003 Addenda, and 2004 Edition provides requirements for welding, brazing, metal removal, and installation of repair/replacement activities.

4. Reason for Request:

In accordance with 10 CFR 50.55a(a)(3)(i), Exelon Generation Company, LLC (Exelon) is requesting a proposed alternative from the requirement for replacement or internal weld repair of wall thinning conditions resulting from degradation in Class 2 and 3 moderate energy carbon steel raw water piping systems in accordance with IWA-4000. Such degradation may be the result of mechanisms such as erosion, corrosion, cavitation, and pitting – but excluded are conditions involving flow-accelerated corrosion (FAC), corrosion-assisted cracking, or any other form of cracking. IWA-4000 requires repair or replacement in accordance with the Owner's Requirements and the original or later Construction Code. Other alternative repair or evaluation methods are not always practicable because of wall thinness and/or moisture issues.

The primary reason for this request is to permit installation of a technically sound temporary repair to provide adequate time for evaluation, design, material procurement, planning and scheduling of appropriate permanent repair or replacement of the defective piping, considering the impact on system availability, maintenance rule applicability, and availability of replacement materials.

5. Proposed Alternative and Basis for Use:

In accordance with 10 CFR 50.55a(a)(3)(i), Exelon proposes to implement the requirements of ASME Code Case N-789 ("Alternative Requirements for Pad Reinforcement of Class 2 and 3 Moderate-Energy Carbon Steel Piping for Raw Water Service, Section XI, Division 1") as a temporary repair of degradation in Class 2 and 3 moderate energy raw water piping systems resulting from mechanisms such as erosion, corrosion, cavitation, or pitting, but excluding conditions involving flow-accelerated corrosion (FAC), corrosion-assisted cracking, or any other form of cracking. These types of defects are typically identified by small leaks in the piping system or by pre-emptive non-code required examinations performed to monitor the degradation mechanisms.

The alternative repair technique described in Code Case N-789 involves the application of a metal reinforcing pad welded to the exterior of the piping system, which reinforces the weakened area and restores pressure integrity. This repair technique will be utilized when it is determined that this temporary repair method is suitable for the particular defect or degradation being resolved.

The Code Case requires that the cause of the degradation be determined, and that the extent and rate of degradation in the piping be evaluated to ensure that there are no other unacceptable locations within the surrounding area that could affect the integrity of the repaired piping. The area of evaluation will be dependent on the degradation mechanism present. A baseline thickness examination will be performed for a completed structural pad, attachment welds, and surrounding area, followed by monthly thickness monitoring for the first three months, with subsequent frequency based on the results of this monitoring, but at a minimum of quarterly. In the case of the pressure pads, in lieu of inservice monitoring, the design of pressure pads conservatively assumes 2 times the actual measured corrosion rate, or 4 times if using an estimated rate; therefore, no inservice monitoring will be performed. The repair will be considered to have a maximum service life of the time until the next refueling outage, when a permanent repair or replacement must be performed. Additional requirements for design of reinforcement pads, installation, examination, pressure testing, and inservice monitoring are provided in Code Case N-789.

Based on the above justification, the use of Code Case N-789 as a proposed alternative to the requirements of ASME Section XI will provide an acceptable level of quality and safety.

All other ASME Section XI requirements for which relief was not specifically requested and authorized by the NRC staff will remain applicable including third party review by the Authorized Nuclear Inservice Inspector.

Code Case N-789 was approved by the ASME Board on Nuclear Codes and Standards on June 25, 2011; however, it has not been incorporated into NRC Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI Division 1," and thus is not available for application at nuclear power plants without specific NRC approval. Therefore, Exelon requests use of this alternative repair technique described in the Code Case via this relief request.

6. Duration of Proposed Alternative:

The proposed alternative is for use of the Code Case for the remainder of each plant's current ten (10) year inspection interval specified in Section 2.

7. Precedents:

A similar repair relief request (RR-3-43) was approved for Indian Point Nuclear Generating Unit No. 3 on February 22, 2008.