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

May 19, 2016

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer (CNO)
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2; NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2; AND R. E. GINNA NUCLEAR POWER PLANT – PROPOSED ALTERNATIVE TO USE CODE CASE N-789 (CAC NOS. MF7018–MF7022)

Dear Mr. Hanson:

By application dated October 28, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15301A596), Exelon Generation Company, LLC (the licensee) submitted a proposed alternative to the requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Nine Mile Point Nuclear Station, Units 1 and 2, and R. E. Ginna Nuclear Power Plant. The licensee revised and resubmitted its proposed alternative by letter dated March 22, 2016 (ADAMS Accession No. ML16083A412); thus, superseding the original application submitted on October 28, 2015. The proposed alternative would allow the licensee to use 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," with specified modifications, in lieu of specified ASME Code requirements.

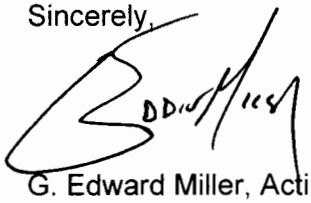
Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the subject request and concludes, as set forth in the enclosed safety evaluation, that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the NRC staff authorizes the use of the proposed alternative described in the licensee's March 22, 2016, letter, for the remainder of each plant's current 10-year inservice inspection interval, as specified in the letter, or until the NRC approves Code Case N-789 for general use through rulemaking and revision to NRC Regulatory Guide 1.147, whichever comes first.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Blake Purnell at 301-415-1380 or via e-mail at Blake.Purnell@nrc.gov.

Sincerely,



G. Edward Miller, Acting Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317, 50-318, 50-220,
50-410, and 50-244

Enclosure:
Safety Evaluation

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

PROPOSED ALTERNATIVE TO CODE CASE N-789

CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2,

NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2,

R.E. GINNA NUCLEAR POWER PLANT,

EXELON GENERATION COMPANY, LLC

DOCKET NOS. 50-317, 50-318, 50-220, 50-410, AND 50-244

1.0 INTRODUCTION

By application dated October 28, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15301A596), Exelon Generation Company, LLC (the licensee) submitted a proposed alternative to the requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) for Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Nine Mile Point Nuclear Station, Units 1 and 2, and R. E. Ginna Nuclear Power Plant. The licensee revised and resubmitted its proposed alternative by letter dated March 22, 2016 (ADAMS Accession No. ML16083A412); thus, superseding the original application submitted on October 28, 2015. The proposed alternative would allow the licensee to use 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," with specified modifications, in lieu of specified ASME Code requirements.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the alternative on the basis that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

2.0 REGULATORY EVALUATION

The NRC staff considered the following regulatory requirements and guidance in its evaluation.

The regulations in 10 CFR 50.55a(g)(4) state, in part, that ASME Code Class 1, 2, and 3 components (including supports) must meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in Section XI of the ASME Code to the extent practical within the limitations of design, geometry, and materials of construction of the components.

The regulations in 10 CFR 50.55a(z), state, in part, that alternatives to the ASME Code requirements may be authorized by the NRC if the licensee demonstrates that: (1) the proposed alternative provides an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The licensee's application, as supplemented, proposes an alternative to Article IWA-4000, "Repair/Replacement Activities," in Section XI of the ASME Code. Subarticle IWA-4400 of the ASME Code, Section XI, requires that unacceptable flaws in ASME Code Class 2 and 3 components be corrected by repair or replacement activity or be accepted by supplemental examination and flaw evaluation.

Code Case N-789 provides an alternative to the ASME Code requirements in IWA-4400 for replacement or internal weld repair of ASME Class 2 and 3 moderate energy carbon steel raw water piping systems. On March 2, 2016, the NRC published in the *Federal Register* (81 FR 10780) a proposed rule which, in part, would incorporate by reference into the NRC regulations the latest revision of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 18 (Draft Regulatory Guide DG-1296) (ADAMS Accession No. ML15027A202). As part of the proposed rule, the NRC staff proposes to endorse Code Case N-789 with two conditions (see DG-1296). Although the use of Code Case N-789 by nuclear power plants requires specific NRC approval until the final rule is issued, the staff considered the two conditions proposed for Code Case N-789 in its review of the licensee's application, as supplemented.

3.0 TECHNICAL EVALUATION

3.1 Licensee's Relief Request

3.1.1 Component Identification

The affected components are ASME Code Class 2 and 3 moderate energy carbon steel raw water piping systems. Raw water is defined in the licensee's submittals as water, such as from a river, lake, or well, or brackish/salt water, used in plant equipment, area coolers, and heat exchangers. Moderate energy is defined as less than or equal to 200 degrees Fahrenheit and less than or equal to 275 pounds per square inch gauge maximum operating conditions.

3.1.2 Applicable Code Edition

The licensee identified that the 2004 Edition of the ASME Code is applicable to each facility. The table below shows the applicable inservice inspection (ISI) 10-year interval, including the start and end dates.

Plant	**ISI Interval**	**Start**	**End**
Calvert Cliffs Units 1 and 2	Fourth	October 10, 2009	June 30, 2019
R.E. Ginna	Fifth	January 1, 2010	December 31, 2019
Nine Mile Point Unit 1	Fourth	August 23, 2009	August 22, 2019
Nine Mile Point Unit 2	Third	April 5, 2008	April 4, 2018

3.1.3 Applicable Code Requirement

ASME Code, Section XI, IWA-4400, provides requirements for welding, brazing, metal removal, fabrication, and installation of repair/replacement activities.

3.1.4 Licensee's Proposed Alternative

Pursuant to 10 CFR 50.55a(z)(2), the licensee requests a proposed alternative to the requirements for IWA-4000, for the 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, corrosion assisted cracking, or any other form of cracking. Specifically, the licensee proposes to use ASME Code Case N-789 with specified modifications. ASME Code Case N-789 provides provisions for the application of a metal reinforcing pad (pressure pad and structural pad) welded to the exterior of the piping system.

The licensee revised and resubmitted its proposed alternative with its March 22, 2016, letter; thus, superseding the proposed alternative submitted on October 28, 2015. The requirements of the Code Case N-789, as modified by the licensee's March 22, 2016, letter, are summarized below.

Section 1, "General Requirements," of Code Case N-789 states that application of the reinforcing pad shall be performed in accordance with a repair replacement plan satisfying the requirements of IWA-4150. Section 1 also states that the design, materials, and installation shall meet the requirements of the Construction Code and IWA-4000, except as stated in the Code Case. Section 1 also specifies limitations on the use of the Code Case.

Section 2, "Initial Evaluation," of Code Case N-789 requires ultrasonic measurement of the pipe, in the area to be repaired by the reinforcing pad, to establish the existing pipe wall thickness, including the extent and configuration of degradation. The cause and rate of degradation shall also be determined.

Section 3, "Design," of Code Case N-789 specifies the design requirements for reinforcing pads. Subsection 3.1 defines the two types of reinforcing pads, pressure pads and structural pads, and specifies the conditions for their use. Paragraph 3.1(a)(1) states:

> Pressure pads are designed to retain pressure, and may be used only where the piping is predicted to retain full structural integrity until the next refueling outage assuming a corrosion rate of either 2 times the actual measured corrosion rate in that location, or 4 times the estimated maximum corrosion rate for the system.

As a modification to this requirement, the licensee's March 22, 2016, letter states:

> For the pressure pad design, the higher of 2 times the actual measured corrosion rate or 4 times the estimated maximum corrosion rate for the system will be used. If the actual measured corrosion rate in the degraded location is unavailable, the estimated maximum corrosion rate for the system assumed in the design will be calculated based on the same degradation mechanism as the degraded location.

Paragraph 3.1(a)(2) of Code Case N-789 states: "Structural pads are designed for pressure plus structural reinforcement and may be used where the piping is predicted not to retain full structural integrity until the next refueling outage."

Subsection 3.2 of Code Case N-789 specifies the design requirements applicable to both types of reinforcing pads. Subsections 3.3 and 3.4 specify the specific design requirements for pressure pads and structural pads, respectively.

Paragraph 3.2(a) of Code Case N-789 requires reinforcing pads to be designed in accordance with the applicable requirements of the Construction Code or Section III of the ASME Code (i.e., NC-3100, ND-3100 and NC-3600, ND-3600 including Appendix II). However, Subsection 3.5 states that application of structural pads on straight pipe, standards elbows and associated welds shall be exempt from paragraph 3.2(a) provided that specified conditions are satisfied.

Section 4, "Water-Backed Applications," of Code Case N-789 specifies requirements for attachment welds on water-backed piping. Section 5, "Installation," specifies requirements for the installation of the reinforcing pad. Section 6, "Examination," specifies the requirements for examination after the reinforcing pad is welded to the pipe. Section 7, "Pressure Testing," states: "In lieu of the ASME Code, Section XI, IWA-4540, a system leakage test of the repair/replacement activity shall be performed in accordance with IWA-5000 prior to, or as part of, returning to service."

Section 8, "Inservice Monitoring," of Code Case N-789 specifies the requirements for monitoring of structural pads following completion of the repair. In addition to the inservice monitoring requirements in Code Case N-789, the licensee stated in its application, as supplemented:

> Areas containing pressure pads shall be visually observed at least once per month to monitor for evidence of leakage. If the areas containing pressure pads are not accessible for direct observation, then monitoring will be accomplished by visual assessment of surrounding areas or ground surface areas above pressure pads on buried piping, or monitoring of leakage collection systems, if available.

If the results of the monitoring program identify leakage or indicate that the structural margins required by Section 3 of the Code Case will not be maintained until the next refueling outage, paragraph 8(c) of Code Case N-789 requires additional repair/replacement activities to be performed prior to encroaching on the design limits. However, paragraph 1(d) states, "Additional reinforcement or repair is not permitted on top of an existing reinforcing pad." Paragraph 8(d) states: "Reinforcing pads shall not remain in service beyond the end of the next refueling outage."

3.1.5 Hardship Justification

The licensee contends that its proposed alternative permits the installation of a technically sound temporary repair which permits time for evaluation, design, material procurement, planning, and scheduling of an appropriate permanent repair or replacement of defective piping, taking into consideration the impact on system availability, maintenance rule applicability, and the availability of materials. The licensee further stated:

> Performing code repair/replacement in lieu of implementing this Relief Request would in some cases necessitate extending Technical Specification actions to install a permanent repair/replacement, putting the plant at higher safety risks

compared with the short time necessary to install a technically sound pad repair. Use of this Code Case may avoid a plant shutdown in situations where it may be necessary to shut the plant down for a code repair/replacement activity. This could result in an unnecessary plant transient and the loss of safety system availability as compared to maintaining the plant online.

3.1.6 Duration of Relief Request

The licensee proposed to apply Code Case N-789, as needed, for the remainder of each plant's 10-year ISI interval (see Section 3.1.2). Any reinforcing pads installed before the end of the 10-year ISI interval will be removed during the next refueling outage, even if that refueling outage occurs after the end of the 10-year ISI interval. The licensee stated in its March 22, 2016, letter that when the NRC approves Code Case N-789 for general use (i.e., through rulemaking), it will follow the Code Case and any conditions in NRC Regulatory Guide 1.147 in lieu of this relief request.

3.2 NRC Staff's Evaluation

The NRC staff reviewed the licensee's proposed alternative using the regulatory requirements and guidance described in Section 2.0. The staff also considered past precedents (e.g., see ADAMS Accession No. ML15079A003). The staff evaluated the proposed alternative to ensure it is adequate to maintain the structural integrity and leak tightness of repaired piping. The staff's review included the following elements of the proposed alternative: (1) general requirements; (2) initial evaluation; (3) design requirements; (4) water-backed application; (5) installation; (6) examination; (7) pressure testing; (8) inservice monitoring; and (9) hardship justification.

3.2.1 General Requirements

Section 1 of Code Case N-789 requires the reinforcing pad be applied in accordance with a repair replacement plan satisfying the requirements of the ASME Code, Section XI, IWA-4150. The design, materials, and installation requirements of the Construction Code and IWA-4000, except as stated in the Code Case, must be satisfied. The Code Case includes the following limitations: (1) the repair cannot be applied if the minimum required thickness of reinforcing pad necessary to satisfy the requirements of Section 3 of the Code Case is greater than the nominal thickness for the size and schedule of the piping; (2) additional reinforcement or repair on top of an existing reinforcing pad is prohibited; (3) reinforcing pads, including those installed during a refueling outage, shall not remain in service beyond the end of the next refueling outage; and (4) the repair is only applicable to piping not required to be ultrasonically examined for inservice inspection. The NRC staff determined that the proposed general requirements and limitations are appropriate for the affected piping systems.

3.2.2 Initial Evaluation

Prior to installing the reinforcing pad, Section 2 of Code Case N-789 requires that the base metal be ultrasonically examined and the cause and rate of degradation to be determined. If the degradation is caused by flow-accelerated corrosion, corrosion-assisted cracking, or any other form of cracking, the licensee will not use the proposed alternative to repair the subject piping. Section 2 requires an evaluation to determine the extent of degradation in the subject piping to ensure integrity of the repaired piping will be maintained. Based on this, the NRC staff determined that the proposed initial evaluation requirements are acceptable.

3.2.3 Design Requirements

Section 3 of Code Case N-789 describes the two types of reinforcing pads, pressure pads and structural pads, and specifies the conditions and requirements for their use. Pressure pads are designed to retain pressure but do not structurally reinforce the repaired piping. Structural pads are designed to retain pressure and provide structural reinforcement for piping which is predicted not to retain full structural integrity until the next refueling outage.

Paragraph 3.1(a)(1) of the Code Case permits use of a pressure pad only if the piping is predicted to retain full structural integrity until the next refueling outage assuming a corrosion rate of either two times the actual measured corrosion rate in that location, or four times the estimated maximum corrosion rate for the system. In its March 22, 2016, letter, the licensee stated that it will use the higher of the two values for the design of the pressure pad. The licensee further clarified that if the actual corrosion rate at the repair location is unknown, then the pressure pad design will be based on a corrosion rate that is four times the estimated maximum corrosion rate for the same degradation mechanism in that system. In its March 2, 2016, *Federal Register* notice, the NRC staff proposed a condition to require use of the higher of the two values since the corrosion rate specified in paragraph 3.1(a)(1) may not address certain scenarios. With respect to the pipe corrosion rate used for the design of the pressure pad, the licensee's proposed alternative is similar to the staff's proposed condition in DG-1296. The staff determined that the conditions under which licensee will use pressure pads is acceptable since the licensee will use the more conservative corrosion rate.

Paragraph 3.2(a) of Codes Case N-789 states that reinforcing pads will be designed in accordance with the applicable requirements of the Construction Code or Section III of the ASME Code.

Paragraph 3.2(i) of Code Case N-789 specifies requirements for the flexibility analysis for "rectangular-shaped reinforcing pads on piping designed to NC-2650, ND-3650 and aligned parallel or perpendicular to the axis." The NRC staff notes that the reference to NC-2650 is incorrect (it does exist), and it should be NC-3650. The staff determined that it is clear from the context that the intended references are NC-3650 and ND-3650, as they provide ASME Code requirements for Class 2 and 3 piping designs, respectively.

The generic design criteria in paragraph 3.2(f) of Code Case N-789 requires the reinforcing pad design to be based on the predicted maximum degradation of the reinforced piping until the next refueling outage. The predicted degradation of the piping will be based on in-situ inspection of, and established data for, similar base metals in similar environments. The proposed alternative requires that if the reinforcing pad is predicted to become exposed to the raw water, the predicted degradation of the reinforcing pad shall be based upon established data for base metals or weld metals with similar chemical composition to that used for the reinforcing pad. As discussed above, the proposed alternative includes specific requirements for determining the pipe corrosion rate for pressure pad applications. However, the proposed alternative does not provide specific requirements for the determination of the corrosion rate for the structural pad.

The structural pad will be designed with partial penetration attachment welds that extend for a distance in each direction beyond the area predicted, by the next refueling outage, to infringe upon the required thickness. Final configuration of the structural pad including attachment welds will permit the examinations and evaluations required by the Code Case, including any required preservice or inservice examinations of encompassed or adjacent welds. The Code

Case requires the thickness of the reinforcing pad to be sufficient to maintain the required thickness until the next refueling outage.

The NRC staff could not determine if the generic requirements of the Code Case are sufficient to ensure a bounding corrosion rate is used for the structural pad design. However, the repair is limited to a maximum duration of one operating cycle, which should limit the degradation following the repair, and the structural pad shall be designed to maintain its required thickness for this duration. In addition, if the actual corrosion rate is higher than expected and a leak develops at or around the installed pad, the Code Case requires inservice monitoring[1] of the repaired piping and requires the licensee to take corrective action if leakage is detected. Based on its review of the design requirements and these additional requirements, the staff determined that the proposed requirements for the structural pad design are acceptable, even though the corrosion rate used in the design may not be bounding.

Based on the NRC staff's review of the proposed alternative, the staff determined that the proposed design requirements for reinforcing pads are acceptable. The description of the two types of pads in Code Case N-789, along with the licensee's statement that it will use the more conservative corrosion rate for the design of pressure pads, is adequate to ensure that the appropriate pad type and Code Case requirements are used for pipe repairs given the conditions of the pipe. The reinforcing pads will be designed in accordance with applicable requirements of the Construction Code or Section III of the ASME Code. In conclusion, the proposed design requirements for reinforcing pads, taking into consideration the inservice monitoring program requirements, will provide reasonable assurance of the structural integrity and leak tightness of the repaired piping until the next refueling outage

3.2.4 Water-Backed Applications

The proposed alternative requires the use of the shielded metal arc welding process with low hydrogen electrodes for the attachment welds on water-backed piping. The proposed alternative further requires precaution be taken when welding a reinforcing pad to a leaking area. For piping materials other than P-No. 1, Group 1, the licensee will perform the surface examination no sooner than 48 hours after completion of welding. The NRC staff notes that waiting at least 48 hours after welding ensures that if delayed hydrogen cracking occurs it will be detected during the surface examination. Therefore, the NRC staff finds the proposed requirements for water-backed applications to be acceptable.

3.2.5 Installation

Code Case N-789 requires the use of a welding procedure qualified in accordance with the Construction Code and Section IX of the ASME Code. Based on this, the NRC staff determined the proposed installation requirements are acceptable.

3.2.6 Examination

After the reinforcing pad is welded to the pipe, Code Case N-789 requires a surface examination (liquid penetrant or magnetic particle) and volumetric examination of the pad, weld, and base metal, as appropriate, to be performed in accordance with the Construction Code or Section III of the ASME Code. The NRC staff finds the proposed acceptance examinations to

[1] The staff's review of the inservice monitoring program is further discussed in Section 3.2.8.

be acceptable since they will be performed in accordance with the appropriate Construction Code or ASME Code requirements.

3.2.7 Pressure Testing

Code Case N-789 requires a system leakage test to be performed in accordance with ASEME Code, Section XI, IWA-5000, prior to, or as part of, returning the system to service. The NRC staff finds that the proposed pressure testing to be acceptable because it will be performed in accordance with the appropriate ASME Code, Section XI, requirements.

3.2.8 Inservice Monitoring

The Code Case requires structural pads to be examined using ultrasonic or direct thickness measurement upon completion of the repair, to record the thickness of the plate, the thickness at the attachment welds, including the underlying base metal, and to the extent examinable in a 3-inch wide band, surrounding the repair, as a baseline for subsequent monitoring of the repair. The licensee is required to monitor the structural pad monthly for the first quarter and the subsequent frequency will be based on the results of the monitoring activities, but at least quarterly.

Code Case N-789 does not require inservice monitoring of pressure pads. However, as part of its proposed alternative, the licensee stated in its application, as supplemented, that areas containing pressure pads will be visually examined monthly for evidence of leakage. If an area is not accessible for direct observation, the licensee will observe surrounding areas or ground surface areas above pressure pads on buried piping, or monitor leakage collection systems, if available. In its March 2, 2016, *Federal Register* notice, the NRC staff proposed a condition to require monthly visual examination of the installed pressure pad for evidence of leakage since degradation of the pipe could unexpectedly expand beyond the area covered by the pressure pad. With respect to pressure pad monitoring, the licensee's proposed alternative includes requirements similar to the staff's proposed condition in DG-1296.

The Code Case requires that if the results of the monitoring program identify leakage or indicate that the structural margins will not be maintained until the next refueling outage, the pad will be removed and repair or replacement activities shall be performed prior to encroaching on the design limits.

The NRC staff determined that the proposed inservice monitoring requirements are acceptable because: (1) the frequency and the examination method are adequate to monitor the structural integrity of pressure pads and structural pads, and (2) the acceptance criteria for pressure pads and structural pads are clearly defined and adequate.

3.2.9 Summary

The NRC staff finds that the proposed alternative will provide reasonable assurance of the structural integrity and leak tightness of repaired ASME Class 2 and 3 moderate energy carbon steel raw water piping systems because (1) the scope of the application is clearly defined; (2) reinforcing pads will be designed in accordance with the Construction Code, Section III of the ASME Code, and the requirements in Code Case N-789, as modified by the licensee's March 22, 2016, letter; (3) the degraded pipe will be examined and evaluated prior to the repair; (4) acceptance examinations will be performed to verify the condition of the repair; (5) inservice

monitoring will be performed to verify the pipe wall thickness and potential degradation; and (6) pressure testing will be performed in accordance with ASME Code, Section XI, IWA-5000.

3.2.10 Hardship Justification

Making permanent ASME Code compliant repairs of piping systems may require the system to be removed from service and the plant to shutdown. Additionally, performing the ASME Code repair during normal operation may challenge the technical specification completion time requirements and place the plant at higher safety risk than warranted. Therefore, the NRC staff determined that compliance with the specified ASME Code repair requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

4.0 CONCLUSIONS

As set forth above, the NRC staff determined that the proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject components and that complying with ASME Code, Section XI, IWA-4400, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(z)(2). Therefore, the staff authorizes the use of the proposed alternative described in the licensee's March 22, 2016, letter for the remainder of each plant's current 10-year ISI interval, as specified in the letter (Section 3.1.2 of this safety evaluation), or until the NRC approves Code Case N-789 for general use through rulemaking and revision to NRC Regulatory Guide 1.147, whichever comes first.

All other ASME Code, Section XI, requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: M. Audrain, NRR/DE/EPNB

If you have any questions, please contact Blake Purnell at 301-415-1380 or via e-mail at Blake.Purnell@nrc.gov.

Sincerely,

/RA/

G. Edward Miller, Acting Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-317, 50-318, 50-220,
50-410, and 50-244

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