

10 CFR 50.55a

RS-21-009

January 18, 2022

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

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

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

Subject: Proposed Relief Request Associated with Code Case N-921

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1), 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" and 10 CFR 50.55a(g)(4)(ii), "Applicable ISI Code: Successive 120-month interval," 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-921, "Alternative 12-yr Inspection Interval Duration."

Exelon requests approval of the proposed alternative by December 1, 2022.

There are no regulatory commitments contained in this letter.

If you have any questions or require additional information, please contact Tom Loomis at 610-765-5510.

Respectfully,



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David T. Gudger  
Sr. Manager - Licensing & Regulatory Affairs  
Exelon Generation Company, LLC

Attachment: Relief Request

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cc: Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Dresden Nuclear Power Station  
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station  
NRC Project Manager - Dresden Nuclear Power Station  
NRC Project Manager - Quad Cities Nuclear Power Station  
Illinois Emergency Management Agency - Division of Nuclear Safety

**ATTACHMENT**

**RELIEF REQUEST**

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**Proposed Alternative Associated with Code Case N-921 in Accordance with 10 CFR 50.55a(z)(1)**

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**1. ASME CODE COMPONENTS AFFECTED**

All ASME Code Class 1, 2, 3, and MC components.

This proposed alternative is limited to IWA-2430, IWA-2431, and Tables IWB-2411-1, IWC-2411-1, IWD-2411-1, IWE-2411-1, and IWF-2410-1.

**2. APPLICABLE CODE EDITION AND ADDENDA**

<u>PLANT</u>	<u>INTERVAL</u>	<u>EDITION</u>	<u>START DATE</u>	<u>CURRENT END DATE</u>	<u>REVISED END DATE</u>
Dresden Nuclear Power Station, Units 2 and 3	Fifth ISI	2007 Edition, through 2008 Addenda	January 20, 2013	January 19, 2023	January 19, 2025
	Third CISI	2013 Edition	September 9, 2018	September 8, 2028	September 8, 2030
Quad Cities Nuclear Power Station, Units 1 and 2	Fifth ISI	2007 Edition, through 2008 Addenda	April 2, 2013	April 1, 2023	April 1, 2025
	Third CISI	2013 Edition	September 9, 2018	September 8, 2028	September 8, 2030

Note: Absent rulemaking or other similar subsequently approved Code changes, Dresden and Quad Cities will resubmit this relief for the successive Inservice Inspection (ISI) and Containment Inservice Inspection (CISI) intervals to take advantage of the benefits described below.

**3. APPLICABLE CODE REQUIREMENTS**

10 CFR 50.55a(g)(4)(ii), *Applicable ISI Code: Successive 120-month interval*, states, in part, that Inservice examination of components and system pressure tests conducted during successive 120-month inspection intervals must comply with the requirements of the latest edition and addenda of the ASME Code incorporated by reference in paragraph (a) of this section 18 months before the start of the 120-month inspection interval.

IWA-2430 – INSPECTION INTERVALS – This section state that the inservice examinations and system pressure tests required by IWB, IWC, IWD, IWE, and inservice examinations and tests of IWF shall be completed during each of the inspection intervals for the service lifetime of the plant. The inspections shall be performed in accordance with the schedule of the Inspection Program of IWA-2431.

IWA-2431 - Inspection Program - The inspection intervals shall comply with the following, except as modified by IWA-2430(c) (and IWA-2430(d) (2013 Edition)):

*1st Inspection Interval* - 10 years following initial start of plant commercial service

*Successive Inspection Intervals* - 10 years following the previous inspection interval

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Table IWB-2411-1, IWC-2411-1, IWD-2411-1, IWE-2411-1, and IWF-2410-1 – Inspection Program – These Tables provide the calendar years of plant service within the interval for each period (3 years, 7 years, 10 years) and the distribution of completed examinations.

### **4. REASON FOR REQUEST**

Exelon Generation Company, LLC (Exelon) requests approval to implement Code Case N-921. This Code Case establishes a 12-year inspection interval for inspection programs. This is a marginal extension from a 10-year to 12-year interval which supports a minimum two refueling outages per period and supports improved operational strategies such as skip ISI outages and divisional outages. The divisional outage strategy is based on the concept that one division of safety systems is removed during an outage as compared to swapping between divisions during an outage. The divisional outage strategy enhances safety by reducing the challenges of swapping safety trains during an outage. The minimal change of extending the interval length will not reduce plant safety.

### **5. PROPOSED ALTERNATIVE AND BASIS FOR USE**

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (z)(1), Exelon is requesting the use of Code Case N-921 on the basis that the proposed alternative provides an acceptable level of quality and safety.

This proposed alternative is limited to IWA-2430 (including Class CC components - IWL), IWA-2431, and Tables IWB-2411-1, IWC-2411-1, IWD-2411-1, IWE-2411-1, and IWF-2410-1. Note: neither Dresden nor Quad Cities CISI programs contain any Class CC concrete components inspected in accordance with Subsection IWL.

Currently ASME Section XI breaks up the 10-year inspection interval into (3) periods (typically a 3-4-3 year breakdown for periods). This code case will establish four-year periods (4-4-4 year breakdown) over the course of a 12-year inspection interval. This change supports light water-cooled plants that have transitioned from 18-month refueling cycles to 24-month refueling cycles and ensures each inspection period during a 12-year interval will have at least two refueling outages (2-2-2 format). Based on where each Unit is during the current interval, the initial implementation of the Code Case at Dresden and Quad Cities will not result in 2 outages per period; however, during scheduling of the successive interval there will be 2 outages per period. This is an improvement over the current 10-year interval for a 24-month refueling cycle plant where one period will have only a single outage to complete examinations (1-2-2, 2-1-2, or 2-2-1 format). Having only a single refueling outage for an inspection period places undue burden on plants to meet required inspection period percentage requirements as well as completing all required periodic examination and testing within a single outage. The current 10-year interval allows as little as 16% of exams to be performed in a period with a single outage; however, this still does not eliminate exam categories where 100% examination is required each period. Examples of this hardship are completing all required outage pressure tests within a single outage (Class 2/Class 3 periodic pressure tests conducted only during outages) and having only a single outage to complete all required periodic IWE exams requirements (Containment General visual exams and moisture barrier exams accessible only during outages).

Also, for inspection periods with a single outage, this requires additional trains/divisions of equipment to be removed from service or aligned to facilitate periodic exams for that outage. This results in a reduction of train availability and safety equipment. Many plants have gone to "train-specific" outage where most of the work is only performed on a single train/division in

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order to minimize train swaps and complex operational alignments. Having only a single outage in an inspection period can place burden to complete the required inspections if they do not align with the outage train/division. Having at least two outages per period will ensure train and division outage schedules can be properly planned and aligned with the needed ISI exams. Also, not having to perform all required periodic examinations within a single refueling outage will give the plant additional flexibility and optimization of the required resources.

Since the inception of ASME Section XI, the Augmented Inservice Inspection Programs and site-specific commitments based on operating experience have vastly grown and have well established requirements and basis for examinations. These examinations are often focused on specific degradation mechanisms and concentrate on the most relevant operating experience within the industry. These examinations are not necessarily driven or required by the ASME Section XI Code and these augmented examinations will continue to be scheduled in accordance with the stations augmented inspection programs during the extended interval. The performance of these augmented exams provides additional assurance that the reactor coolant pressure boundary is maintained even if ASME Section XI Code required exams are extended from 10 to 12 years. Also, VT-2 visual examinations associated with the Class 1 system leakage test will be performed each refueling outage regardless of interval length; therefore, the ongoing augmented ISI exams along with the ongoing leakage tests every refueling outage provide adequate assurance that structural integrity is being maintained for a 12-year inspection interval.

The proposed alternative does not impact inspections required to be performed prior to the end of the license renewal period.

The relief requests applicable to the current interval that are based on a 10-year inspection frequency will be scheduled and performed on the required 10-year frequency during the extended interval. Enclosure 1 contains a listing of the relief requests for the fifth ISI and third CISI interval at Dresden and Quad Cities that will be extended from 10 to 12 years.

Based on over four decades of operating experience for Dresden and Quad Cities, extending the interval from 10 years to 12 years will have negligible impact to safe operation of the plant or the health and safety of the public. Extending the interval will minimize train/loop swaps to perform the exams, minimize plant operational concerns, and as a result, enhance plant safety. Dresden and Quad Cities will continue to perform augmented ISI exams, Class 1 system leakage tests, and required 10-year inspection frequency exams to further ensure plant and public safety.

### Conclusion

Based on current ISI examination and testing requirements, the proposed alternative will better synchronize future inspection periods within a 12-year Interval with improved operational strategies adopted industry wide while having a negligible effect on plant safety. This allows plants the ability to better align periodic examinations with scheduled maintenance during a train/division specific refueling outage. Based on the reasons mentioned above, extending an ISI interval from 10 to 12 years will allow the plants greater flexibility to align and perform future ISI examinations while maintaining safe plant operations. Accordingly, the proposed alternative will provide an acceptable level of quality and safety.

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**6. DURATION OF PROPOSED ALTERNATIVE**

The proposed alternative will be applicable for the remainder of each plant's extended ISI and CISI inspection interval as specified in Section 2 or until such time as the NRC approves a similar administrative requirement relaxation in an NRC approved applicable Code Edition in 10 CFR 50.55a or a Code Case in Regulatory Guide 1.147.

**7. PRECEDENTS**

None

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**Enclosure 1**  
**Fifth Interval Relief Requests**

**Relief Requests and Letters to Approve Later Editions of the ASME Code Associated with the Fifth ISI Interval and Third CISI Interval for Dresden Nuclear Power Station, Units 2 and 3**

<b>Description</b>	<b>Date Submitted / ML#</b>	<b>Date Approved / ML#</b>
Extension of Relief for Alternative Reactor Pressure Vessel Circumferential Weld Examinations for Additional License Operating Period.	February 23, 2004 (ML040620661)	March 23, 2005 (ML050620359) (Authorized for the 20-year extended operation)
Inspection of Standby Liquid Control Nozzle Inner Radius.	September 28, 2012 (ML12275A069), as supplemented by letters November 19, 2012 (ML123250319), June 3, 2013 (ML13154A248)	September 30, 2013 (ML13258A003, ML13260A585)
Alternate Risk Informed Selection and Examination Criteria for Examination Categories B-F, B-J, C-F-1, and C-F-2 Pressure Retaining Piping Welds.	September 28, 2012 (ML12275A069), as supplemented by letters dated November 28, 2012 (ML12333A263) June 3, 2012 (ML13154A248)	September 30, 2013 (ML13258A003, ML13260A585)
Continuous Pressure Monitoring of the Control Rod Drive (CRD) System Accumulators.	September 28, 2012 (ML12275A069), as supplemented by letters dated	September 30, 2013 (ML13258A003, ML13260A585)
Use of BWRVIP Guidelines in Lieu of Specific ASME Code Requirements on Reactor Pressure Vessel Internals and Components Inspection.	September 28, 2012 (ML12275A069), as supplemented by letter dated November 19, 2012 (ML123250319)	September 30, 2013 (ML13258A003, ML13260A585)
Alternative for Inspection of Nozzle-to-Vessel Shell Welds and Nozzle Inner Radius Sections of RPV Nozzles.	June 30, 2016 (ML16187A295), as supplemented by letter dated August 22, 2016 (ML16235A0850)	June 28, 2017 (ML17073A121)
Alternative for Examination of ASME Section XI, Examination Category B-G-1, Item Number B6.40, Threads in Flange.	October 31, 2016 (ML16306A270) as supplemented by letter dated April 3, 2017 (ML17093A883)	June 26, 2017 (ML17170A13)

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<b>Description</b>	<b>Date Submitted / ML#</b>	<b>Date Approved / ML#</b>
Proposed Alternative to Utilize Code Cases N-878 and N-880.	May 30, 2018 (ML18151A028) as supplemented by letters dated July 26, 2018 (ML18208A345), January 8, 2019 (ML19008A187), May 1, 2019 (ML19122A307), June 4, 2019 (ML19155A214)	July 18, 2019 (ML19192A244)
Use of Encoded Phased Array Ultrasonic Examination Techniques In Lieu of Radiography.	February 15, 2019 (ML19049A001) as supplemented by letter dated June 25, 2019 (ML19176A343)	September 27, 2019 (ML19269C543)
Revision to Relief Requests Associated with the Use of the BWRVIP Guidelines in Lieu of Specific ASME Code Requirements on Reactor Pressure Vessel Internals and Components Inspection.	February 19, 2019 (ML19050A363)	April 30, 2019 (ML19098A034)
Request to Use a Portion of a Later Edition of the ASME B&PV Code, Section XI.	August 27, 2019 (ML19239A208)	April 17, 2020 (ML20099D955)
Testing Frequency for Isolation Condenser Shell Side and Vent Piping.	November 12, 2019 (ML19340A095)	January 13, 2020 (ML20008D276)
Request to Use Provisions of a Later Edition of the ASME Boiler and Pressure Vessel Code, Section XI, IWA-4540(b).	September 2, 2020 (ML20246G735) as supplemented by letter dated September 24, 2020 (ML20268A984)	September 30, 2020 (ML20269A200)
Request to Use Provisions of a Later Edition of ASME Boiler and Pressure Vessel Code, Section XI (IWA-5120).	September 2, 2020 (ML20246G739) as supplemented by letters dated September 24, 2020 (ML20268A984)	February 3, 2021 (ML21028A673)
Proposed Alternative Concerning ASME Section XI Repair/Replacement Documentation for Replacement of Pressure Retaining Bolting.	December 1, 2020 (ML20336A008) as supplemented by letters dated April 20, 2021 (ML21110A092), May 18, 2021 (ML21138A839), July 7, 2021 (ML21188A242)	August 5, 2021 (ML21216A220)

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<b>Description</b>	<b>Date Submitted / ML#</b>	<b>Date Approved / ML#</b>
Proposed Alternative to Utilize Code Cases N-878 and N-880 (include carbon steel piping).	January 4, 2021 (ML21004A066)	June 25, 2021 (ML21166A168)
Proposed Relief Request Associated with RPV Water Level Instrument (WLI) Partial Penetration Nozzle Repairs.	August 12, 2021 (ML21224A123)	Currently being reviewed by NRC.

**Relief Requests and Letters to Approve Later Editions of the ASME Code Associated with the Fifth ISI Interval and Third CISI Interval for Quad Cities Nuclear Power Station, Units 1 and 2**

<b>Description</b>	<b>Submittals / ML#</b>	<b>Date Approved / ML#</b>
Extension of Relief for Alternative Reactor Pressure Vessel Circumferential Weld Examinations for Additional License Operating Period.	February 23, 2004 (ML040620661)	March 23, 2005 (ML050620359) (Authorized for the 20-year extended operation)
Inspection of Standby Liquid Control Nozzle Inner Radius.	September 28, 2012 (ML12275A070) as supplemented by letters dated November 28, 2012 (ML12333A262), May 30, 2013 (ML13151A107)	September 30, 2013 (ML13267A097)
Alternate Risk Informed Selection and Examination Criteria for Examination Categories B-F, B-J, C-F-1, and C-F-2 Pressure Retaining Piping Welds.	September 28, 2012 (ML12275A070) as supplemented by letters dated November 28, 2012 (ML12333A263), May 30, 2013 (ML13123A086)	September 30, 2013 (ML13267A097)
Continuous Pressure Monitoring of the Control Rod Drive (CRD) System Accumulators.	September 28, 2012 (ML12275A070) as supplemented by letters dated January 24, 2013 (ML13025A161)	September 30, 2013 (ML13267A097)
Use of BWRVIP Guidelines in Lieu of Specific ASME Code Requirements on Reactor Pressure Vessel Internals and Components Inspection.	September 28, 2012 (ML12275A070) as supplemented by letters dated May 30, 2013 (ML13151A107)	September 30, 2013 (ML13267A097)
Use of ASME Code Case N-513-3, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping, at Higher System Operating Pressure.	March 28, 2014 (ML14090A140) as supplemented by letters dated October 29, 2014 (ML14303A463),	March 19, 2015 (ML15043A496)

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Description	Submittals / ML#	Date Approved / ML#
	February 5, 2015 (ML15036A487)	
Alternative for Examination of ASME Section XI, Examination Category B-G-1, Item Number B6.40, Threads in Flange.	October 31, 2016 (ML16306A270) as supplemented by letter dated April 3, 2017 (ML17093A883)	June 26, 2017 (ML17170A13)
Alternative for Inspection of Nozzle-to-Vessel Shell Welds and Nozzle Inner Radius Sections of RPV Nozzles (ASME Code Case N-702).	December 19, 2016 (ML16354A749)	August 25, 2017 (ML17221A264)
Quad Cities Generating Station Unit 2, Relief for the Unit 2 Reactor Pressure Vessel Penetration N-11B Repair.	February 14, 2017 (ML 17045A681), as supplemented by letter dated January 4, 2018 (ML18004B515)	January 24, 2018 (ML18022A616) ("The NRC authorizes the use of proposed alternatives for QCNPS, Unit 2, through Cycle 27 currently scheduled to end in spring 2024, not to exceed 9 years from the spring 2016 outage when the demonstrated NDE was last performed.")
Proposed Alternative to Utilize Code Cases N-878 and N-880.	May 30, 2018 (ML18151A028) as supplemented by letters dated July 26, 2018 (ML18208A345), January 8, 2019 (ML19008A187), May 1, 2019 (ML19122A307), June 4, 2019 (ML19155A214)	July 18, 2019 (ML19192A244)
Use of Encoded Phased Array Ultrasonic Examination Techniques In Lieu of Radiography.	February 15, 2019 (ML19049A001) as supplemented by letter dated June 25, 2019 (ML19176A343)	September 27, 2019 (ML19269C543)
Revision to Relief Requests Associated with the Use of the BWRVIP Guidelines in Lieu of Specific ASME Code Requirements on Reactor Pressure Vessel Internals and Components Inspection.	February 19, 2019 (ML19050A363)	April 30, 2019 (ML19098A034)
Request to Use a Portion of a Later Edition of the ASME B&PV Code, Section XI.	August 27, 2019 (ML19239A208)	April 17, 2020 (ML20099D955)

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<b>Description</b>	<b>Submittals / ML#</b>	<b>Date Approved / ML#</b>
Request to Use Provisions of a Later Edition of the ASME Boiler and Pressure Vessel Code, Section XI, IWA-4540(b).	September 2, 2020 (ML20246G735) as supplemented by letter dated September 24, 2020 (ML20268A984)	September 30, 2020 (ML20269A200)
Request to Use Provisions of a Later Edition of ASME Boiler and Pressure Vessel Code, Section XI (IWA-5120).	September 2, 2020 (ML20246G739) as supplemented by letter dated September 24, 2020 (ML20268A984)	February 3, 2021 (ML21028A673)
Proposed Alternative Concerning ASME Section XI Repair/Replacement Documentation for Replacement of Pressure Retaining Bolting.	December 1, 2020 (ML20336A008) as supplemented by letters dated April 20, 2021 (ML21110A092), May 18, 2021 (ML21138A839), July 7, 2021 (ML21188A242)	August 5, 2021 (ML21216A220)
Proposed Alternative to Utilize Code Cases N-878 and N-880 (include carbon steel piping).	January 4, 2021 (ML21004A066)	June 25, 2021 (ML21166A168)
Proposed Relief Request Associated with RPV Water Level Instrument (WLI) Partial Penetration Nozzle Repairs.	August 12, 2021 (ML21224A123)	Currently being reviewed by NRC.