



NUCLEAR REGULATORY COMMISSION

[Docket Nos. 50-237, 50-249, 50-254, and 50-265; NRC-2025-0096]

Constellation Energy Generation, LLC; Dresden Nuclear Power Station, Units 2 and 3; Quad Cities Nuclear Power Station, Units 1 and 2; Exemption

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is issuing exemptions in response to a request dated February 14, 2025, from Constellation Energy Generation, LLC, to allow the implementation of the American Society of Mechanical Engineers Code Case N-921 after the start dates of the sixth inservice inspection (ISI) and fourth Containment ISI intervals at Dresden Nuclear Power Station, Units 2 and 3, and Quad Cities Nuclear Power Station, Units 1 and 2.

DATES: The exemption was issued on July 8, 2025.

ADDRESSES: Please refer to Docket ID **NRC-2025-0096** 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 Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2025-0096**. Address questions about Docket IDs in Regulations.gov to Bridget Curran; telephone: 301-415-1003; email: Bridget.Curran@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 <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, 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, at

301-415-4737, or by email to PDR.Resource@nrc.gov. The exemption requests dated February 14, 2025, is available in ADAMS under Accession No. ML25045A177.

- **NRC's PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Scott P. Wall, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-2855; email: Scott.Wall@nrc.gov.

SUPPLEMENTARY INFORMATION: The text of the exemption is attached.

Dated: July 14, 2025.

For the Nuclear Regulatory Commission.

Scott Wall,
*Senior Project Manager,
Plant Licensing Branch III,
Division of Operating Reactor Licensing,
Office of Nuclear Reactor Regulation.*

Attachment – Exemption

NUCLEAR REGULATORY COMMISSION

Docket Nos. 50-237, 50-249, 50-254, and 50-265

Constellation Energy Generation, LLC

Dresden Nuclear Power Station, Units 2 and 3

Quad Cities Nuclear Power Station, Units 1 and 2

Exemption

I. Background.

Constellation Energy Generation, LLC (CEG, the licensee) is the holder of the Renewed Facility Operating Licenses (RFOLs) Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station, Units 2 and 3 (Dresden), which consist of two boiling water reactors (BWRs) located in Grundy County, Illinois; and DPR-29 and DPR-30 for Quad Cities Nuclear Power Station, Units 1 and 2 (Quad Cities), which consist of two BWRs located in Rock Island County, Illinois. The RFOLs provide, among other things, that the facilities are subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

On July 17, 2024, NRC issued a final rule incorporating by reference Regulatory Guide (RG) 1.147 Revision 21 in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(3)(ii) (89 FR 58039). This RG conditionally approved American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI (ASME BPV XI) Code Case N-921, “Alternative 12-yr Inspection Interval Duration.” This code case allows NRC licensees to implement an inservice inspection (ISI) program based upon a 12-year ISI interval, as opposed to the traditional 10-year ISI interval required by ASME BPV XI, Paragraph IWA-2431. RG 1.147 Revision 21 specifies four conditions on Code Case N-921. Condition 2 states, “This code case can only be implemented at the beginning of an ISI interval as part of a routine update of the ISI program.” The July 17, 2024, final rule also added 10 CFR 50.55a(y), which includes a definition for the

term “inservice inspection interval.” This definition specifies that the length of the ISI interval is defined in ASME BPV XI, Paragraph IWA-2431.

II. Request/Action.

By application dated February 14, 2025 (ML25045A177), the licensee, pursuant to 10 CFR 50.12, “Specific exemptions,” requested exemptions from certain requirements of 10 CFR 50.55a(a)(3)(ii) and 10 CFR 50.55a(y) to allow the use of Code Case N-921 after the start dates of the sixth ISI and fourth Containment ISI intervals at Dresden and Quad Cities which is not in accordance with Condition 2 on Code Case N-921, as specified in RG 1.147, Revision 21. The sixth ISI interval at Dresden and Quad Cities began on January 20, 2023, and April 2, 2023, respectfully. The licensee stated that the proposed exemptions do not impact the Inservice Testing (IST) program or snubber program, which are implemented under the requirements of the ASME Operation and Maintenance Code.

III. Discussion.

Pursuant to 10 CFR 50.12(a), the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR part 50 when (1) the exemptions are authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security and (2) special circumstances are present. Under 10 CFR 50.12(a)(2), special circumstances are present when at least one of the following five conditions are met:

- (i) Application of the regulation in the particular circumstances conflicts with other rules or requirements of the Commission; or
- (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule; or
- (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are

- significantly in excess of those incurred by others similarly situated; or
- (iv) The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption; or
 - (v) The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation; or
 - (vi) There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.

A. The Exemption is Authorized by Law

The exemptions would authorize exemption from the requirements of 10 CFR 50.55a(a)(3)(ii) and 10 CFR 50.55a(y) to allow the use of Code Case N-921, after the start dates of the sixth ISI and fourth Containment ISI intervals at Dresden, and Quad Cities. As stated, 10 CFR 50.12(a) allows the NRC to grant exemptions from the requirements of 10 CFR part 50, including 10 CFR 50.55a(a)(3)(ii) and 10 CFR 50.55a(y), when the exemptions are authorized by law. Exemptions are authorized by law where they are not expressly prohibited by statute or regulation. A proposed exemption is implicitly authorized by law if it will not present an undue risk to the public health and safety, are consistent with the common defense and security, and special circumstances are present, and no other provisions in law prohibit, or otherwise restrict, its application. The NRC staff has determined that no provisions in law expressly prohibit or otherwise restrict the application of the requested exemptions. The NRC staff has also determined, as explained below, that the requested exemptions will not present an undue risk to the public health and safety, are consistent with the common defense and security, and special circumstances are present. Therefore, the NRC staff concludes that the exemption is authorized by law.

B. The Exemption Presents no Undue Risk to Public Health and Safety

The exemptions would allow the licensee to implement Code Case N-921 after the start dates of the sixth ISI and fourth Containment ISI intervals at Dresden and Quad Cities. The action does not change the manner in which the plant operates and maintains public health and safety because the exemptions do not result in a change to the facility or the current operating license. The licensee stated that extending the ISI interval by 2 years does not impact the technical basis supporting any of the currently authorized 10 CFR 50.55a alternatives and does not create any particular challenge in reconciling the ISI inspection schedules to conform with the three four-year periods specified in Code Case N-921. Accordingly, the NRC staff reviewed the alternatives listed in Attachments 2 and 3 of the licensee's exemptions request for ISI interval-related risk impacts and identified several common themes in these alternatives and evaluated the alternatives as described below.

Alternatives with No ISI Interval Relationship

The majority of authorized alternatives in Attachments 2 and 3 of the licensee's exemptions are unrelated to the length of the ISI interval. For example, (i) several alternatives approve repair techniques for a single cycle, and (ii) some alternatives relate to geometric obstacles due to permanently installed equipment that inhibit the licensee's ability to perform a qualified examination. Therefore, the NRC's bases for approving these alternatives are not impacted by extending the length of the ISI interval to 12 years.

Alternatives Based on Topical Reports with 10-Year ISI Intervals

The NRC staff noted that several authorized alternatives are based on approved topical reports which were originally generated assuming a 10-year ISI interval. Each of these topical reports are described below.

- *BWRVIP-108NP-A, "Technical Basis for the Reduction of Inspection Requirements*

for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii” dated October 2018 (ML19297F806) (BWRVIP-108)

- *BWRVIP-241NP-A, “Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii,” dated October 2018 (ML19297G738) (BWRVIP-241)*

BWRVIP-108 and BWRVIP-241 provide a basis for reduced sampling of BWR nozzle-to-vessel shell welds and nozzle-blend radii, relative to the ASME BPV Section XI requirement. These reports present probabilistic fracture mechanics results demonstrating that the likelihood of fracture is insensitive to the frequency of inspection given known degradation mechanisms. In BWRVIP-108 this was analyzed for a 40-year operating period assuming a 10-year ISI interval, showing a very low fracture probability with a bounding analysis (e.g. demonstrating no higher than a 1×10^{-6} probability of fracture, the real value being lower). In BWRVIP-241, the industry repeated this analysis for a broader range of nozzle geometries to investigate stress effects.

While the BWRVIP-108 and BWRVIP-241 analyses assumed a 10-year ISI interval in calculating failure probability, there are offsetting factors that account for potential impacts of a 12-year ISI interval. First, in Section 5.3, “Assumptions,” BWRVIP-108 describes a sensitivity study assuming no examination of the subject locations. This sensitivity case bounds the impacts of a 12-year ISI interval, where the examinations may be more spread out in time but not eliminated. Second, the BWRVIP-108 and BWRVIP-241 analyses assume the existence of flaws in the subject welds and nozzle inner radii. The NRC staff finds this to be a conservative assumption, because the examination history of these locations does not indicate that significant cracking is occurring. Finally, in Attachments 2 and 3 of the licensee’s exemptions, the licensee stated that alternatives I6-R04 (Quad Cities) and I6-R05 (Dresden), which addressed the nozzle shell welds and inner radii examinations, are authorized only through the end of the current license. Therefore, the licensee must reassess this examination requirement at end of license, regardless of the length of the ISI interval.

Accounting for these factors, the NRC staff concludes that the NRC's basis for approving these alternatives is not impacted by extending the length of the ISI interval to 12 years.

- *BWRVIP-05 – NRC Safety Evaluation: Supplemental Safety Evaluation of EPRI Topical Report TR-105697 “BWR Vessel and Internals Project, BWR Reactor Pressure Vessel Shell Weld Inspection Recommendations (BWRVIP-05),” Dated March 7, 2000 (ML003690281).*
- *BWRVIP-74 – NRC Safety Evaluation: Final Safety Evaluation of EPRI Proprietary Report TR-113596 “BWR Vessel And Internals Project, BWR Reactor Pressure Vessel Inspection and Flaw Evaluation Guidelines (BWRVIP-74)” and Compliance with the License Renewal Rule (10 CFR Part 54),” Dated October 18, 2001 (ML012920549).*

BWRVIP-05 and BWRVIP-74 provide a basis for bounding circumferential welds in the reactor vessel through inspection of axial welds consistent with Generic Letter 98-05, “Boiling Water Reactor Licensees Use of the BWRVIP-05 Report to Request Relief from Augmented Examination Requirements on Reactor Pressure Vessel Circumferential Shell Welds,” dated November 10, 1998 (ML082460066). The NRC staff's initial evaluation of the BWRVIP-05 Report was issued on July 28, 1998 (ML20236V551). Under this generic letter, licensees must demonstrate that (1) at the expiration of their license, the circumferential welds will continue to satisfy the limiting conditional failure probability for circumferential welds in the NRC staff's July 28, 1998, safety evaluation, and (2) licensees have implemented operator training and established procedures that limit the frequency of cold over-pressure events to the amount specified in the NRC staff's July 28, 1998, safety evaluation. Neither of these criteria are related to the length of the ISI interval. Therefore, the NRC staff concludes that the bases for approving these alternatives are not impacted by extending the length of the ISI interval to 12 years.

Based on its review of the licensee's analysis of proposed alternatives in Attachments 1 and 2 of the exemption requests, the NRC staff concludes that the

exemptions would not result in any significant reduction in the effectiveness of the ISI programs implemented by the licensee at Dresden and Quad Cities. Further, based on the above, the NRC staff concludes that the exemptions would not present an undue risk to the public health and safety.

C. The Exemption is Consistent with the Common Defense and Security

The requested exemptions would allow the licensee to implement Code Case N-921 after the start dates of the sixth ISI and fourth Containment ISI intervals at Dresden and Quad Cities. The change is administrative in nature, adequately controlled by the ISI Program criteria and ASME Code requirements and is not related to security issues. The length of the ISI interval is not related to security issues. Because the common defense and security is not impacted by the exemptions, the exemptions are consistent with the common defense and security.

D. Special Circumstances

The regulation under 10 CFR 50.12(a)(2) states, in part, that “[t]he Commission will not consider granting an exemption unless special circumstances are present,” and describes, in 10 CFR 50.12(a)((i) – (vi), the conditions under which special circumstances exist. In Section III(d) of the licensee’s exemptions request, the licensee stated that three of the six special circumstances listed in 10 CFR 50.12(a)(2) are present:

- (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule.
- (iii) Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated.
- (vi) There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption.

The NRC staff performed an independent review of the special circumstances claimed by the licensee.

For the special circumstances in 10 CFR 50.12(a)(2)(ii), the licensee stated that the purpose of the July 2024 final rule (89 FR 58039) was to identify ASME code cases that the NRC determined to be acceptable for use. The licensee noted that NRC's approval of Code Case N-921 includes a condition that "This code case can only be implemented at the beginning of an ISI interval as part of a routine update of the ISI program." The licensee provided the following support to the claim that application of the regulation would not serve the underlying purpose of the rule:

- The licensee stated that the exemption would not inhibit the ability of the licensee to comply with the ASME BPV XI examination distribution requirements.
- Tables 2 through 5 of the licensee's submittal described the new inspection period dates and corresponding refueling outages.
- The licensee evaluated all NRC-authorized alternative requests in Attachments 2 and 3 of the licensee's submittal, consistent with NRC concerns expressed in the 89 FR 58039 final rule preamble (see NRC staff's independent review in Section III.B above).
- The licensee stated that the site ISI program owners routinely modify the ISI examination schedule during the ISI interval due to various reasons, such as evolving availability of qualified personnel and equipment.

In the 89 FR 58039 final rule preamble, the NRC communicated that order and predictability of licensee ISI programs is a paramount consideration. The careful advance planning required by ASME BPV XI and 10 CFR 50.55a maximizes licensee effectiveness in successfully executing all ISI requirements. The successful execution of ISI requirements, in turn, contributes to nuclear safety by providing a data stream used to continuously evaluate the structural integrity of safety-related components. The NRC staff determined that the licensee provided adequate evidence that, if the NRC approves the proposed exemption, the ISI programs at Dresden and Quad Cities will be managed

in a manner that promotes order and predictability.

In the 89 FR 58039 final rule, the NRC added a new condition requiring that Code Case N-921 be implemented at the start of a new ISI interval. Implementation of Code Case N-921 in the middle of an ISI interval creates complications related to existing examination schedules and alternatives that were approved assuming a 10-year ISI interval. As discussed above, the licensee demonstrated that no currently approved alternatives are impacted by extending the length of the ISI interval to 12 years. Another NRC staff concern with allowing mid-cycle implementation of Code Case N-921 relates to complications with reconciling ISI inspection schedules to conform with the three 4-year periods specified in Code Case N-921. As discussed above, the licensee stated that in anticipated implementation of Code Case N-921, the licensee proactively adjusted examination schedules accordingly to maintain compliance with Code Case N-921 periodic distribution requirements. Therefore, the NRC staff concludes that application of the regulation would not serve the underlying purpose of the rule because the licensee demonstrated that mid-cycle implementation of Code Case N-921 will have no impact on the ISI programs at Dresden and Quad Cities. Based on the above, the special circumstances described in 10 CFR 50.12(a)(2)(ii) are present for the requested exemptions. Since the regulations require that one of the special circumstances of 10 CFR 50.12(a)(2) be present before NRC may grant an exemption, the NRC staff did not evaluate the licensee's position that the special circumstances in 10 CFR 50.12(a)(2)(iii) and (vi) are present.

E. Environmental Considerations

The NRC staff determined that the exemption discussed herein meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(25) because (i) there is no significant hazards consideration; (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (iii) there is no significant increase in individual or cumulative public or occupational radiation exposure; (iv) there is no significant construction impact; (v) there is no

significant increase in the potential for or consequences from radiological accidents; and (vi) the requirements from which an exemption is sought are among those identified in 10 CFR 51.22(c)(25)(vi), including requirements of an administrative, managerial, or organizational nature. Therefore, in accordance with 10 CFR 51.22(b), no environmental impact statement or environmental assessment need to be prepared in connection with the issuance of the exemption. The basis for this NRC staff determination is discussed as follows with an evaluation against each of the requirements in 10 CFR 51.22(c)(25). *Requirements in 10 CFR 51.22(c)(25)(i) – There is no significant hazards consideration.*

The criteria for determining whether an action involves a significant hazards consideration are found in 10 CFR 50.92(c). The exemptions only involve an ISI program implementation change, which is administrative in nature. The exemptions do not adversely affect plant equipment, operation, or procedures. Therefore, there are no significant hazard considerations, because granting the exemptions would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

Requirements in 10 CFR 51.22(c)(25)(ii) – There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The exemptions involve only an ISI program implementation change, which is administrative in nature, and does not involve any changes in the types or significant increase in the amounts of any effluents that may be released offsite.

Requirements in 10 CFR 51.22(c)(25)(iii) – There is no significant increase in individual or cumulative public or occupational radiation exposure.

Since the exemptions involve only an ISI program implementation change, which is administrative in nature, it does not contribute to any significant increase in occupational or public radiation exposure.

Requirements in 10 CFR 51.22(c)(25)(iv) – There is no significant construction impact.

Since the exemptions involve only an ISI program implementation change, which is administrative in nature, it does not involve any construction impact.

Requirements in 10 CFR 51.22(c)(25)(v) – There is no significant increase in the potential for or consequences from radiological accidents.

The exemptions involve only an ISI program implementation change, which is administrative in nature and does not impact the potential for or consequences from accidents.

Requirements in 10 CFR 51.22(c)(25)(vi)(I) – The requirements from which the exemption is sought involve requirements that are administrative in nature.

The exemptions involve only an ISI program implementation change regarding examination scheduling requirements and other requirements of an administrative, managerial, or organizational nature, because they are associated with the marginal extension from a 10-year to 12-year ISI interval.

Based on the above, NRC determined that the exemptions meet the eligibility criteria for the categorical exclusion set forth in 10 CFR 51.22(c)(25). Therefore, in accordance with 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with these exemption requests.

IV. Conclusions.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants CEG's request for exemptions from 10 CFR 50.55a(a)(3)(ii) and 10 CFR 50.55a(y) to allow the implementation of ASME Code Case N-921 after the start dates of the sixth ISI and

fourth Containment ISI intervals at Dresden and Quad Cities.

These exemptions are effective upon issuance.

Dated: July 8, 2025.

For the Nuclear Regulatory Commission.

/RA/

Jamie Pelton, Acting Director,
Division of Operating Reactor Licensing,
Office of Nuclear Reactor Regulation.

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