TENNESSEE VALLEY AUTHORITY

Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3 Request for Exemptions from 10 CFR 50.55a(a)(3)(iii), which incorporates by reference Regulatory Guide 1.192, Revision 5, for Code Case OMN-31, and 10 CFR 50.55a(y)

September 16, 2025

Agenda

- Overview of Exemption Request
- Background
- Basis for Approval of Exemption Request
- Environmental Considerations
- Proposed Schedule

Overview of Exemption Request

- In accordance with 10 CFR 50.12, “Specific exemptions,” Tennessee Valley Authority (TVA), is requesting Nuclear Regulatory Commission (NRC) approval of exemptions from 10 CFR 50.55a(y), which defines the inservice testing (IST) interval as 10 years and 10 CFR 50.55a(a)(3)(iii), which incorporates by reference American Society of Mechanical Engineers (ASME) Code Case OMN-31, “Alternative to Allow Extension of ISTA-3120 Inservice Examination and Test Intervals from 10 Years to 12 Years,” from Regulatory Guide (RG) 1.192, Revision 5, “Operation and Maintenance Code Case Acceptability, ASME OM Code.”
- Table 2 of RG 1.192 contains a condition that limits initial implementation of Code Case OMN-31 to the beginning of an IST interval.
- The exemption request, if granted, will allow the BFN Units 1, 2, and 3 to implement ASME Code Case OMN-31 during the current IST interval.
- Exemptions are requested for the remainder of the current IST interval.

Background

- Code Case OMN-31 establishes a 12-year IST interval for inservice testing programs. The marginal extension from a 10-year to 12-year IST interval does not affect the current schedule of IST test frequencies.
- The conditional acceptance of Code Case OMN-31 was added to RG 1.192, Revision 5 in response to an anonymous public comment (ML23235A158 and ML23291A328)

Background (cont.)

C-3 Code Case OMN-31 Implementation

Comment Summary C-3: *A commenter suggested that the NRC add a condition to require implementation at the beginning of an IST/IST interval following a required update rather than allow early implementation mid-interval using 10 CFR 50.55a(f)(4)(iv) and (g)(4)(iv). The commenter stated that implementing Code Case OMN-31 mid-interval could lead to extra burden for the NRC and the industry. Specifically, existing alternatives would likely need to be reapproved by the NRC. Conditioning implementation to be at the start of a new interval would eliminate these requests. The NRC's regulatory analysis did not provide or address the additional costs associated with updating to the code cases mid-interval for licensees submitting new alternative requests. (13-2, 13-3)*

Background (cont.)

NRC Response:

The NRC agrees with the commenter and has added a condition to only allow implementation of Code Case OMN-31 to occur at the beginning of an IST interval, rather than allowing implementation during a mid-IST interval. The NRC agrees that mid-IST interval implementation of Code Case OMN-31 would create a significant burden for both the NRC and licensees because of the ongoing schedule for IST activities and the need to resubmit requests for alternatives and relief based on a 10 year IST interval with certain conditions, which makes the necessary burden to achieve an extra 1-year IST interval extension of questionable resource value. ***Licensees wishing to implement Code Case OMN-31 during a mid-IST interval should submit an exemption request in accordance with 10 CFR 50.12 and should review all NRC-authorized alternative requests and NRC-granted relief requests to determine whether they need to be resubmitted to the NRC for review and authorization.***

As a result of this comment, the NRC added a condition in RG 1.192, Revision 5, to only allow implementation of Code Case OMN-31 at the beginning of a new IST interval.

Background (cont.)

The Statements of Consideration to the Final Rule reiterate the rational underlying the conditional acceptance of OMN-31 (Final Rule, ASME Code Cases and Update Frequency, 89 Fed. Reg. 58039, July 17, 2024):

the NRC is restricting the use of OMN-31 to licensees implementing the ASME OM Code, 2017 Edition, or later, as the code of record for the IST Program, as well as imposing a condition that licensees may only begin implementing Code Case OMN-31 at the beginning of an IST interval as specified in ASME OM Code, paragraph ISTA 3120. See Section II.F, "Mid-Interval Discussion and Example," for a more detailed discussion of performing mid-interval updates.

As indicated in RG 1.192, this OM Code Case may be applied by licensees implementing the 2017 Edition, or later, of the ASME OM Code incorporated by reference in § 50.55a, as the code of record for the IST Program, contrary to the ASME OM Code Case Applicability Index, dated July 1, 2022. The NRC is also imposing a condition that licensees may only begin implementing Code Case OMN-31 at the beginning of an IST interval as specified in ASME OM Code, paragraph ISTA-3120.

Background (cont.)

Section II.F of the above Final Rule states, in part:

Similarly, a licensee might consider implementing Code Case N–921 during an ISI interval or Code Case OMN-31 during an IST interval. The staff notes that complications may arise because of reconciling Section XI and OM Code requirements and requests that were granted or authorized for a 10-year ISI/IST interval relative to the edition previously specified in the licensee's ISI/IST program. . .Licensees should review previously authorized alternatives under 10 CFR 50.55a(z) and determine if they need to be resubmitted because of the specific duration specified in the request and authorization. The licensee should also review any previously granted relief requests for their duration and the need for resubmittal, as applicable. If such reviews and approvals are completed, licensees may take advantage of the extended code of record interval afforded by the rule.

Background (cont.)

The BFN Units 1, 2, and 3 current IST interval started in August 2023 prior to the incorporation of RG 1.192, Revision 5 into the regulation. Therefore, TVA is required to request NRC approval of an exemption from 10 CFR 50.55a(a)(3)(iii) and 10 CFR 50.55a(y) in order to apply Code Case OMN-31 to the current BFN Units 1, 2, and 3 IST intervals.

During the most recent IST interval update for each of the units listed in Table 1, TVA proactively acted based on the information publicly available, in anticipated implementation of Code Case OMN-31 in the new interval. Specifically, TVA proactively requested NRC approval to revise the BFN Units 1, 2, and 3 IST Code of Record from the 2004 Edition through 2006 Addenda of the OM Code to the 2020 Edition of the OM Code. The NRC conditional acceptance of OMN-31 applies to licensees that have adopted the 2017 Edition, or later edition, of the ASME OM Code. Additionally, TVA stated that it intends to only use those ASME OM Code Cases, as applicable, that have been endorsed by the NRC in RG 1.192.

Background (cont.)

The following table lists the current IST interval start and end dates for BFN Units 1, 2, and 3, and the proposed interval extension date as permitted by OMN-31.

Plant/Unit(s)	Interval	ASME OM Code Edition	Current Interval Start Date	Current Interval End Date	Proposed 12-Yr Interval End Date
BFN Units 1, 2, and 3	5th	2020 Edition	August 31, 2023	August 30, 2032	August 30, 2034
Note	The First IST interval for BFN Units 1, 2, and 3 expired on August 30, 1992 (ML020020162). The Fourth IST interval was adjusted to extend the additional year, as permitted by OM Code, ISTA-3120(d) to end on August 30, 2023. Accordingly, the Fifth IST interval commenced on August 31, 2023, but will end on August 30, 2032, in accordance with ISTA-3120(d), in order to align to the period specified in the BFN IST Program.				

Basis for Approval of Exemption Request

Authorized by law

These exemptions would allow TVA to implement ASME Code Case OMN-31 at BFN Units 1, 2, and 3 during the current IST interval. The NRC acknowledged the appropriateness of submitting an exemption in its response to public comments noted above. Granting the proposed exemptions will not result in a violation of the Atomic Energy Act of 1954, as amended, and will not present an undue risk to the public health and safety and is consistent with the common defense and security. Therefore, the exemptions are authorized by law.

Basis for Approval of Exemption Request

Will not present an undue risk to public health and safety

The underlying purpose of the NRC conditional acceptance of Code Case OMN-31 was to prevent extra burden to the NRC and the licensee regarding IST program implementation, examination schedule revisions and re-submittal of previously approved alternative requests. Any potential burden associated with implementing Code Case OMN-31 impacts time and resources for managing the IST program and does not impact public health and safety. Therefore, these exemptions will not present an undue risk to public health and safety.

Basis for Approval of Exemption Request

Consistent with the common defense and security

The proposed exemptions would allow TVA to implement ASME Code Case OMN-31 at BFN Units 1, 2, and 3 during the current IST interval and has no relation to security. The proposed exemptions will not adversely affect TVA's ability to physically secure the sites and facilities and to protect special nuclear material. Therefore, the common defense and security is not affected by these exemptions.

Basis for Approval of Exemption Request

Special circumstances are present

Criterion 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.

Criterion iii ─ Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted.

Criterion 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.

Criterion ii: Basis for Approval of Exemption Request

Generally speaking, the purpose of the 2024 rulemaking adopting the current provisions of 10 CFR 50.55a(a)(3)(iii) is for the NRC to identify new, revised, and reaffirmed ASME code cases that the NRC has determined are acceptable for use as voluntary alternatives to compliance with certain provisions of the ASME OM Code currently incorporated by reference into the NRC's regulations. The NRC Final Rule adopting ISI Code Case N-921 (similar to OMN-31) states that "The inservice inspection interval and the code of record update interval should be synchronized to promote order and predictability in licensee inservice inspection programs." In a later discussion in this Final Rule regarding Code Case OMN-31, NRC noted that the same logic for Code Case N-921 also applies to Code Case OMN-31.

Because the concerns identified by the NRC in establishing the conditions for Code Case OMN-31 are not applicable to BFN and the OM Code test frequencies are calendar based (rather than period/interval based), the underlying purpose of the rule would continue to be achieved when allowing implementation of Code Case OMN-31 during the current IST interval, the special circumstance of 10 CFR 50.12(a)(2)(ii) is present.

Criterion ii: Basis for Approval of Exemption Request

With respect to the need to evaluate previously approved alternatives that were based on a 10-year IST interval, this would not be a significant burden. TVA performed a review of the previously authorized alternatives for the BFN Units 1, 2, and 3 Fifth IST interval and assessed the impact of extending the interval by 2 years to implement Code Case OMN-31 on the technical basis supporting each alternative. The results of this assessment determined that there is no impact to the technical basis supporting any of the previously approved alternatives. The full assessment of each previously approved alternative and impact of transitioning to a 12-year interval on the supporting technical basis is provided in the following slides.

Criterion ii: Basis for Approval of Exemption Request

Browns Ferry Nuclear Plant Units 1, 2, and 3 – Assessment of Previously Approved Alternatives

Alternative Request Number	Description	Unit(s) Affected	Submittal Date	Approval Date	Duration of Approval	Impact of 12-yr Interval on Technical Basis Supporting Previous Approval
BFN-IST-01	In accordance with 10 CFR 50.55a(z)(2), TVA requested an alternative to 10 CFR 50.55a(b)(3)(xi), "OM condition: Valve Position Indication," for implementing ASME OM Code subsection ISTC-3700, "Position Verification Testing," for supplementing the control rod drive system scram discharge volume vent and drain valve position indicating lights with other indications.	1, 2, and 3	12/12/2022	8/17/2023	Alternative is authorized for duration of the Fifth IST Interval.	**No Impact** – This approved alternative only affects test methods and does not change test frequency. The OM Code test frequencies are calendar based and are not affected by the interval date. The alternative testing will be performed at the OM Code frequency, unless modified by an NRC-approved Code Case. Therefore, the length of the IST Interval does not impact the technical basis supporting the approved alternative.

Criterion ii: Basis for Approval of Exemption Request

Browns Ferry Nuclear Plant Units 1, 2, and 3 – Assessment of Previously Approved Alternatives

Alternative Request Number	Description	Unit(s) Affected	Submittal Date	Approval Date	Duration of Approval	Impact of 12-yr Interval on Technical Basis Supporting Previous Approval
BFN-IST-02	In accordance with 10 CFR 50.55a(z)(2), TVA requested an alternative to 10 CFR 50.55a(b)(3)(xi) for implementing ASME OM Code subsection ISTC-3700 for supplementing manually operated passive residual heat removal system valve position indicating lights with other indications.	1, 2, and 3	12/12/2022	8/17/2023	Alternative is authorized for duration of the Fifth IST Interval.	**No Impact** – This approved alternative only affects test methods and does not change test frequency. The OM Code test frequencies are calendar based and are not affected by the interval date. The alternative testing will be performed at the OM Code frequency, unless modified by an NRC-approved Code Case. Therefore, the length of the IST Interval does not impact the technical basis supporting the approved alternative.

Criterion ii: Basis for Approval of Exemption Request

Browns Ferry Nuclear Plant Units 1, 2, and 3 – Assessment of Previously Approved Alternatives

Alternative Request Number	Description	Unit(s) Affected	Submittal Date	Approval Date	Duration of Approval	Impact of 12-yr Interval on Technical Basis Supporting Previous Approval
BFN-IST-03	In accordance with 10 CFR 50.55a(z)(2), TVA requested an alternative to 10 CFR 50.55a(b)(3)(xi) for implementing ASME OM Code subsection ISTC-3700 for supplementing main steam line drain valve position indicating lights with other indications.	1, 2, and 3	12/12/2022	8/17/2023	Alternative is authorized for duration of the Fifth IST Interval.	**No Impact** – This approved alternative only affects test methods and does not change test frequency. The OM Code test frequencies are calendar based and are not affected by the interval date. The alternative testing will be performed at the OM Code frequency, unless modified by an NRC-approved Code Case. Therefore, the length of the IST Interval does not impact the technical basis supporting the approved alternative.

Criterion ii: Basis for Approval of Exemption Request

Browns Ferry Nuclear Plant Units 1, 2, and 3 – Assessment of Previously Approved Alternatives

Alternative Request Number	Description	Unit(s) Affected	Submittal Date	Approval Date	Duration of Approval	Impact of 12-yr Interval on Technical Basis Supporting Previous Approval
BFN-IST-04	In accordance with 10 CFR 50.55a(z)(2), TVA requested an alternative to 10 CFR 50.55a(b)(3)(xi), ASME OM Code Subsection ISTC subsections ISTC-3500 and ISTC-3700, and OM Code Mandatory Appendix IV, "Preservice and Inservice Testing of Active Pneumatically Operated Valve Assemblies in Nuclear Reactor Power Plants," for main steam relief valve testing requirements.	1, 2, and 3	12/12/2022	8/17/2023	Alternative is authorized for duration of the Fifth IST Interval.	**No Impact** – This approved alternative only affects test methods and does not change test frequency. The OM Code test frequencies are calendar based and are not affected by the interval date. The alternative testing will be performed at the OM Code frequency, unless modified by an NRC-approved Code Case. Therefore, the length of the IST Interval does not impact the technical basis supporting the approved alternative.

Criterion ii: Basis for Approval of Exemption Request

Browns Ferry Nuclear Plant Units 1, 2, and 3 – Assessment of Previously Approved Alternatives

Alternative Request Number	Description	Unit(s) Affected	Submittal Date	Approval Date	Duration of Approval	Impact of 12-yr Interval on Technical Basis Supporting Previous Approval
BFN-IST-05	In accordance with 10 CFR 50.55a(z)(2), TVA requested an alternative to 10 CFR 50.55a(b)(3)(xi) for implementing ASME OM Code subsection ISTC-3700 for supplementing emergency equipment cooling water strainer backwash valve position indicating lights with other indications.	1, 2, and 3	12/12/2022	8/17/2023	Alternative is authorized for duration of the Fifth IST Interval.	**No Impact** – This approved alternative only affects test methods and does not change test frequency. The OM Code test frequencies are calendar based and are not affected by the interval date. The alternative testing will be performed at the OM Code frequency, unless modified by an NRC-approved Code Case. Therefore, the length of the IST Interval does not impact the technical basis supporting the approved alternative.

Criterion ii: Basis for Approval of Exemption Request

The proposed exemptions will allow implementation of Code Case OMN-31 for the remainder of the current IST interval for BFN Units 1, 2, and 3. The other conditions associated with Code Case OMN-31 apply as specified in RG 1.192, Revision 5. The proposed exemptions do not have an impact on the technical basis supporting previously approved relief requests applicable to the current IST interval.

The NRC safety evaluation for TVA Relief Requests BFN-IST-01 through 05 (ML23219A154) references the scheduled interval start and conclusion dates. However, the dates are adjustable by the licensee as allowed by ISTA-3120. The licensee understands NRC approval of BFN-IST-01 through 05 was requested and received for the duration of the Fifth IST Interval. As such, approval of this exemption request does not affect the prior approval of BFN-IST-01 through 05.

Criterion iii: Basis for Approval of Exemption Request

Compliance with Section 50.55a(a)(3)(iii) and the related condition imposed on the implementation of Code Case OMN-31 would result in undue hardship and Special Circumstance 50.12(a)(2)(iii) is present.

The Commission has explained that the application of Criterion iii, undue hardship, is narrow. As the Commission stated in the 1985 rule adopting the current exemption criteria, this special circumstance was "intended to provide equitable treatment to applicants or licensees who, because of some unusual circumstance, are affected in a manner different than that of other similarly situated licensees or applicants." However, TVA will, in fact, be subjected to an undue hardship as a result of the application of the NRC conditions to Code Case OMN-31. Specifically, the limitation that OMN-31 may only be implemented at the beginning of an IST interval or BFN Units 1, 2, and 3 would result in inequitable treatment because it would be done on a basis that does not apply to these facilities.

Criterion iii: Basis for Approval of Exemption Request

As explained above, none of the concerns regarding midcycle adoption of OMN-31 are applicable to TVA or can be easily mitigated. Therefore, it would be fundamentally unfair to preclude TVA ability to implement the useful improvements to IST inspections otherwise permitted by OMN-31.

Criterion vi: Basis for Approval of Exemption Request

There are material circumstances that are present and not considered when the NRC modified 10 CFR 50.55a(a)(3)(iii) and adopted the related conditions for implementation of Code Case OMN-31.

Specifically, the NRC adopted the related conditions for implementation of Code Case OMN-31 based on a single comment without an opportunity for the industry to provide additional input on whether, in fact, mid-cycle implementation of Code Case OMN-31 would result in the significant burden asserted. Had such input been provided, the NRC would have understood a mid-cycle implementation of Code Case OMN-31 would not create the "significant burden" that it anticipated. As explained in this exemption request, the concerns underlying this condition do not exist for TVA.

Environmental Consideration

TVA has determined that the requested exemptions meet the categorical exclusion provision in 10 CFR 51.22(c)(25), as the requested licensing action is an exemption from the requirements of the Commission's regulation and (i) there is no significant hazards consideration; (ii) there is no significant changes 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 involve inspections, scheduling and administrative requirements.

Precedent

While there is no exact precedent for requesting an exemption to implement Code Case OMN-31, on July 8, 2025, NRC approved an exemption request from 10 CFR 50.55a for the Dresden Nuclear Power Station, Units 2 and 3; and the Quad Cities Nuclear Power Station, Units 1 and 2 to adopt inservice inspection (ISI) Code Case N-921 (ML25136A385).

Code Case N-921 is similar to IST Code Case OMN-31 in that it allows extension of 10-year ISI intervals to 12-year intervals. Similar to RG 1.192, the NRC endorsed ISI Code Case N-921 in RG 1.147, “Inservice Inspection Code Case Acceptability, ASME Section Xi, Division 1,” with the 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.” TVA believes the justification for NRC approving the exemption from Code Case N-921 also applies to Code Case OMN-31.

Schedule Milestones

- TVA to submit exemption requests to NRC by October 2025.


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