**NRC INSPECTION MANUAL** EPNB

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| TEMPORARY INSTRUCTION 2515/189 |

INSPECTION TO DETERMINE COMPLIANCE OF

DYNAMIC RESTRAINT (SNUBBER) PROGRAM WITH

10 CFR 50.55a REGULATORY REQUIREMENTS FOR

INSERVICE EXAMINATION AND TESTING OF SNUBBERS

CORNERSTONE: MITIGATING SYSTEMS

APPLICABILITY: This temporary instruction (TI) can apply to all holders of operating licenses for nuclear power reactors except those that have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel. Each region will select a minimum of two sites for this inspection and coordinate their selections in such a way that a variety of owners would be included in the inspection population. Based on the inspection results or the regions’ discretion, more than two sites may be inspected under this TI.

2515/189‑01 OBJECTIVE

The objective of this TI is to verify that snubber programs are consistent with the information provided in Regulatory Issue Summary (RIS) 2010‑06, “Inservice Inspection and Testing of Dynamic Restraints (Snubbers)” (Ref. 1). Enforcement discretion granted under Enforcement Guidance Memorandum (EGM) 10‑001, dated June 1, 2010 (Ref. 2), is no longer in effect. The Office of Nuclear Reactor Regulation (NRR) will review the results of these inspections with respect to meeting the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, as discussed in RIS 2010‑06 and EGM 10‑001. This TI requires U.S. Nuclear Regulatory Commission (NRC) inspectors to selectively verify that licensees have reviewed their snubber programs and taken necessary actions to document and correct nonconformances to the 10 CFR 50.55a requirements, if they exist.

2515/189‑02 BACKGROUND

02.01 Technical Considerations

The NRC issued RIS 2010‑06, to remind licensees of the requirements for the inservice examination and testing of dynamic restraints (snubbers) under 10 CFR 50.55a, “Codes and Standards.” Requirements are contained in 10 CFR 50.55a(g) and 10 CFR 50.55a(b)(3)(v). The NRC staff has discovered that some licensees are not following the regulatory requirements for inservice inspection and testing of snubbers as specified in 10 CFR 50.55a. Some licensees have incorrectly determined that inservice inspection and testing of snubbers is not a

10 CFR 50.55a requirement because (1) they believe that snubbers are not part of components “supports,” (2) historically, snubber examination and testing requirements were defined in the licensees’ technical specifications (TS) before they were incorporated in the requirements of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BP&V) Code, and (3) improved TS allowed relocation of snubber examination and testing requirements from the TS into the technical requirement manual (TRM) or other licensee‑controlled documents. RIS 2010‑06 let stakeholders know that the NRC has issued EGM 10‑001, which provides guidance for dispositioning certain violations of 10 CFR 50.55a related to licensees’ programs for inservice examination and testing of snubbers.

02.02 Regulatory Considerations

The regulations in 10 CFR 50.55a(b) describe the codes and standards that the NRC has approved for incorporation in 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities” (Ref. 3), including the effective edition and addenda of the ASME BP&V Code and the *ASME Code for Operation and Maintenance of Nuclear Power Plants* (OM Code). In 10 CFR 50.55a(g), the NRC established the inservice inspection (ISI) requirements for components, including supports, and required, in part:

Throughout the service life of a boiling or pressurized water‑cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME Boiler and Pressure Vessel Code and addenda.

In 10 CFR 50.55a(g)(4)(ii), the NRC requires the use of the latest edition and addenda of the Code that has been incorporated by reference 12 months before the beginning of each 120‑month inspection interval. This Code is considered to be the “Code of Record” for the inspection interval. Additionally, 10 CFR 50.55a(g)(4)(iv) notes that ISI of components, including supports, may meet the requirements set forth in subsequent editions and addenda of the Code that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

In 10 CFR 50.55a, the NRC requires licensees to perform inservice examination and testing of snubbers in accordance with Section XI of the ASME BP&V Code or the ASME OM Code, except where the NRC has granted specific written relief or authorized alternative inservice examination and testing methods. In 10 CFR 50.55a(b)(3)(v), the NRC allowed the optional use of Subsection ISTD, “Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light‑Water Reactor Nuclear Power Plants,” of the ASME OM Code, 1995 Edition through the latest edition and addenda, in lieu of Section XI of the ASME BP&V Code. If a licensee is using or chooses to use Subsection ISTD, the licensee must make the appropriate changes to TS or licensee‑controlled documents (e.g., the TRM). Licensees have the option of controlling the inservice examination and testing of snubbers through their TS; however, if a revised snubber program for a facility conflicts with the TS, 10 CFR 50.55a(g)(5)(ii) requires the licensee to apply to the Commission for an amendment to the TS to conform the TS to the revised program. Therefore, when performing the required 120‑month program updates in accordance with 10 CFR 50.55a(g)(4), licensees must submit any TS amendments to ensure

their TS remain consistent with the new “Code of Record” or NRC‑approved alternative used in lieu of the Code requirements. Use of the TS, TRM, or licensee‑controlled documents does not eliminate the requirement to update the inservice testing and ISI programs at 120‑month intervals or to obtain NRC approval before using alternatives to the Code requirements, when appropriate.

Licensees must submit a request and receive NRC approval if they are using a licensee‑controlled document in lieu of Section XI of the ASME BP&V Code or OM Code requirements for snubber inservice examination and testing. If approved, the authorized alternative becomes a regulatory requirement that may be used in lieu of the ASME Code requirements.

02.03 Additional Information

The NRC has identified several instances of nuclear power plant licensees using TS, the TRM, or other licensee‑controlled documents that do not meet the requirements of the “Code of Record” as specified in 10 CFR 50.55a for the inservice examination and testing of snubbers. Some of these licensees have not requested approval from the Commission to use alternative testing methods in lieu of their “Code of Record” requirements. Some of the licensees never submitted their snubber programs to the NRC as required by 10 CFR 50.55a.

RIS 2010‑06 and EGM 10‑001 provide additional information covering the background, history, and technical and regulatory considerations applicable to the subjects addressed by this TI.

2515/189‑03 INSPECTION REQUIREMENTS AND GUIDANCE

Specific Requirements and Guidance

03.01 General Inspection Preparation

Inspectors should review the following information in preparation for inspecting the licensees’ snubber program.

1. Copies of EGM 10‑001 (ADAMS Accession No. ML101390020) and RIS 2010‑06 (ADAMS Accession No. ML101310338).
2. A copy of the licensees’ document(s) which contain(s) the current snubber program. The snubber program may be found in the ISI program, the IST program, TS, the TRM, or any other licensee‑controlled documents/procedures.
3. The “Code of Record” for the current 10‑year snubber program. The Code of Record can be found in the document(s) containing the snubber program. ASME Code Section XI or the ASME OM Code lists the “Code of Record,” with edition and addenda, for the latest 10‑year interval, as stated in 10 CFR 50.55a.
4. A copy of any alternatives or relief requests approved by the NRC for the snubber program.
5. Copies of any corrective‑action documents involving snubbers for the current 10‑year interval, including any actions taken to address EGM 10‑001 and RIS 2010‑06.
6. A copy of the snubber program based on the TS—if the licensee relocated its snubber program from the TS to the TRM or any other licensee-controlled documents during current 10-year interval.
7. A copy of the previous snubber program based on Section XI of the ASME BP&V Code—if the licensee converted its snubber program from Section XI of the ASME BP&V Code to Subsection ISTD of the ASME OM Code during the current 10‑year interval.
8. A copy of Table ISTD‑4252‑1, “Visual Examination Table,” from Subsection ISTD of the ASME OM Code if the licensee is using the ASME OM Code for snubber examination and testing of their snubbers. If not, obtain an alternative table which is being used by the licensee for extension of snubber visual examination. This alternative table must have been approved by the NRC through a relief request. (Note for Inspector: This information should be requested from the licensee, if it is not available in snubber program documentation.)

03.02 Snubber Program and Inspection Sampling of Selected Snubbers from Snubber Program

An inspection checklist for Section 03.02 is provided in Attachment 1. Use of the checklist is optional. If used, the checklist should be considered part of the working file as defined in IMC 0620.

a. Snubber Program

1. Determine whether the ASME Code edition or addenda in the current snubber program documentation matches the ASME “Code of Record.”

If they do not match, determine whether the NRC has approved the difference.

1. If the licensee is using the TS or any other licensee‑controlled documents, such as the TRM, determine whether these documents match the ASME “Code of Record.”

If they do not match, determine if the NRC has approved the difference.

1. If the snubber program has been converted from Section XI of the ASME BP&V Code to Subsection ISTD of the ASME OM Code during the current 10‑year interval, determine whether snubber program matches with the ASME “Code of Record.”

If they do not match, determine if the NRC has approved the difference.

4. Determine that the licensee documented any corrective action(s) and corrected these conditions in response to RIS 2010‑06 and EGM 10‑001.

b. Sampling of Selected Snubbers from the Snubber Program

Select five percent of the total snubber program population (not to exceed sixteen snubbers), or at least five snubbers when total snubber program population is less than 100, for sampling at each site. Snubber samples should be selected using risk‑informed insights from site‑specific risk studies, together with other factors such as engineering analysis and judgment, operating experience, performance history, plant conditions, accessibility, and availability to observe testing. Consider selecting an overall snubber sample set which includes snubbers of various sizes, designs, or types (mechanical and hydraulic).

Note: If the selected snubbers are not readily accessible because they (1) are in radiation areas, areas which are only accessible by scaffolding, or areas that can’t be readily accessed for other reasons or (2) present other personnel safety concerns, the inspectors should select another set of snubbers for the inservice visual examination. If none of the selected snubbers are easily available, the inspector may perform visual examination on the snubbers that are available and review snubber inspection records for the remaining snubbers.

At least some of the selected snubbers should be part of the licensee’s current‑interval 10‑year testing sample plan (10% plan, 37‑snubber plan, or 55‑snubber plan), so that the inspector will be able to see the testing records of selected sample snubbers.

For the selected samples, review the following aspects of the inservice visual examination and testing of snubbers with respect to the licensee’s snubber program and NRC‑approved alternative/relief request(s). (1) Snubber Inservice Visual Examination; (2) Snubber Inservice Testing; and (3) Snubber Service Life Monitoring (SLM).

1. Snubber Inservice Visual Examination
2. Determine if the selected snubbers are characterized as accessible or inaccessible for visual examination or if the total population of snubbers is treated as one group without categorizing them as accessible or inaccessible. (Note: Some of the licensees perform visual examination of accessible and inaccessible snubbers during alternate refueling outages.)
3. Determine if the visual examination of the selected snubbers was performed during every refueling outage of the current 10‑year interval.

If not, and if the visual examination was extended beyond one refueling outage, determine whether the frequency of snubber visual examinations is allowed by Table ISTD‑4252‑1 in Subsection ISTD of the ASME OM Code or other approved document.

1. If the visual examination was extended beyond two refueling outage or 48 months as allowed by Table ISTD‑4252‑1, determine if the snubber visual examination frequency was extended to a 10‑year interval through

the use of Code Case OMN‑13, “Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants.”

1. Review the visual examination records and walk down the selected snubbers. During the walkdowns, look for any deficiencies, such as physical damage, loose bolts, leakage, corrosion, or degradation. Compare the walkdown observations to the actual visual examination records maintained by the licensee. As applicable, determine why any degraded conditions exist and why the licensee’s record and observed condition may not identical.
2. Snubber Inservice Testing

Note: Optionally, if the plant is in a refueling outage, the inspector may observe the bench testing of one selected snubber. If bench‑testing observation is performed, only one snubber need be observed and records may be inspected for rest of the selected snubbers.

1. Determine if the total population of snubbers for testing is considered to be one DTPG (Defined Test Plan Group) or multiple DTPGs based on their size, design, application, or type (hydraulic or mechanical). (Note: The ASME OM Code allows different DTPGs for snubber testing.)
2. Determine whether the selected snubbers are part of defined DTPGs. (Note: The ASME OM Code requires a defined DTPG for all snubbers.)
3. For pressurized-water reactors (PWRs), if the selected snubbers are attached to steam generators (SGs) or reactor coolant pumps (RCPs), determine if these snubbers are tested as part of a separate group or DTPG containing only SG and RCP snubbers, as required by the ASME OM Code.
4. As applicable, when testing records for selected snubbers show test failures, determine whether an additional sample at least one‑half the size of the initial sample was tested as required by the ASME OM Code or any other NRC‑approved alternative(s).
5. Optionally, observe the actual testing of the selected snubbers and determine whether the noted test parameters (e.g., activation, release rate, and drag force).
6. Review the test records of selected sample snubbers and determine whether deficiencies, failures, or anomalies were identified during testing.
7. If the licensee is using the ASME OM Code Case OMN‑15, “Requirement for Extending the Snubber Operational Readiness Testing Interval at LWR Power Plants,” to extend the inservice testing interval, determine whether the use of this Code Case has been approved by the NRC. (Note: Currently Regulatory Guide (RG) 1.192, “Operation and Maintenance Code Case Acceptability, ASME OM Code,” dated June 2003, does not list Code Case OMN‑15 as an approved Code Case for use. The licensee may only use Code Case OMN‑15 if such use has been authorized by the NRC at the licensee’s request.)
8. Snubber Service Life Monitoring (SLM)
9. Determine if the selected snubbers are in an SLM program.
10. Determine if the maintenance activities for the selected snubbers are recorded and included in the SLM program.

c. Problem Identification and Resolution

Verify that the licensee has entered the problems identified during the inspection and testing of snubbers in the licensee’s corrective‑action program. Verify that the licensee is identifying issues at an appropriate threshold when entering them in the corrective‑action program. Verify that problems included in the licensee’s corrective‑action program are properly addressed for resolution. Inspectors can refer to Inspection Procedure 71152, “Problem Identification and Resolution,” for additional guidance.

2515/189‑04 REPORTING REQUIREMENTS

Document this inspection activity in the quarterly integrated inspection report and send a copy of the applicable sections by e‑mail to [Gurjendra.Bedi@nrc.gov](mailto:Gurjendra.Bedi@nrc.gov) and to the appropriate NRR Project Manager.

2515/189‑05 COMPLETION SCHEDULE

The inspection should be completed by December 31, 2014.

2515/189‑06 EXPIRATION

This TI will expire on February 15, 2015.

2515/189‑07 CONTACT

This TI was initiated by the Component Performance, NDE, and Testing Branch (NRR/DE/EPNB). For answers to questions about this TI and related issues, contact Gurjendra Bedi at 301‑415‑1393 or [Gurjendra.Bedi@nrc.gov](mailto:Gurjendra.Bedi@nrc.gov).

2515/189‑08 STATISTICAL DATA REPORTING

Charge all direct inspection effort expended to TI 2515/189 with an IPE code of TI. Charge preparation and documentation activities to activity codes TIP and TID respectively.

2515/189‑09 RESOURSE ESTIMATE

The estimated inspection effort for this TI is 32 hours per site.

2515/189‑10 TRAINING

None

2515/189‑11 REFERENCES

1. Regulatory Issue Summary (RIS) 2010‑06, “Inservice Inspection and Testing of Dynamic Restraints (Snubbers),” dated June 1, 2010 (ADAMS Accession No. [ML101310338](http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML101310338)).
2. Enforcement Guidance Memorandum (EGM) 10‑001, “Dispositioning Violation of Inservice Examination and Testing Requirements for Dynamic Restraints (snubbers),” dated June 1, 2010 (ADAMS Accession No. [ML101390020](http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML101390020)).
3. *U.S. Code of Federal Regulations*, “Codes and Standards,” Section 50.55a, “Domestic Licensing of Production and Utilization Facilities,” Part 50, Chapter I, Title 10, “Energy.”
4. Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code,” dated June 2003 (ADAMS Accession No. [ML030730430](http://pbadupws.nrc.gov/docs/ML0307/ML030730430.pdf))

END

Attachment 1 – Snubber Program and Inspection Sampling of Selected Snubbers from Snubber Program (Section 03.02)

Attachment 2 – Revision History Page

| Attachment 1 ‑ Inspection Checklist for  Section 03.02, “Snubber Program and Inspection Sampling of Selected Snubbers from Snubber Program” | | | | | |
| --- | --- | --- | --- | --- | --- |
| Item No. | Plant Name:  Items to Verify in Snubber Program | Inspector Determination and Remarks | | | |
| Yes/No  (or N/A) | | Completed | Remarks |
| **a.** | **Snubber Program** | | | | |
| 1. | Determine whether the ASME Code edition or addenda in the current snubber program documentation matches the ASME “Code of Record.” | Yes  No | Yes  No | |  |
| If they do not match, determine whether the NRC has approved the difference. (Mark “N/A” if the response to the first half of this item was “Yes.”) | Yes  No  N/A | Yes  No | |  |
| 2. | If the licensee is using the TS or any other licensee‑controlled documents, such as the TRM, determine whether these documents match the ASME “Code of Record.” | Yes  No | Yes  No | |  |
| If they do not match, determine whether the NRC has approved the difference. (Mark “N/A” if the response to the first half of this item was “Yes.”) | Yes  No  N/A | Yes  No | |  |
| 3. | If the snubber program has been converted from Section XI of the ASME B&PV Code to Subsection ISTD of the ASME OM Code during the current 10‑year interval, determine whether the snubber program matches the ASME “Code of Record.” | Yes  No | Yes  No | |  |
| If they do not match, determine whether the NRC has approved the difference. (Mark “N/A” if the response to the first half of this item was “Yes.”) | Yes  No  N/A | Yes  No | |  |
| **a.** | **Snubber Program (continued)** | | | | |
| 4. | Determine that the licensee documented any corrective action(s) and corrected these conditions in response to RIS 2010‑06 and EGM 10‑001. (Mark “N/A” if no corrective action(s) were taken by the licensee in response to RIS 2010‑06 and EGM 10‑001.) | Yes  No  N/A | Yes  No | |  |
| **b.** | **Inspection Sampling of Selected Snubbers from Snubber Program** | | | | |
| 1. | Snubber Inservice Visual Examination | | | | |
| (a) | Determine whether selected snubbers are characterized as accessible or inaccessible for visual examination or whether the total population of snubbers is treated as one group without categorizing them as accessible or inaccessible. (Note: Some licensees perform visual examination of accessible and inaccessible snubbers during alternate refueling outages.) | Yes  No  N/A | Yes  No | |  |
| **b.** | **Inspection Sampling of Selected Snubbers from Snubber Program (continued)** | | | | |
| 1. | Snubber Inservice Visual Examination (continued) | | | | |
| (b) | Determine whether visual examination of the selected snubbers was performed during every refueling outage of the current 10‑year interval. | Yes  No  N/A | Yes  No | |  |
| If not, and if the visual examination was extended beyond one refueling outage, determine whether the frequency of snubber visual examination is allowed by Table ISTD‑4252‑1 of Subsection ISTD of the ASME OM Code or other approved document. | Yes  No  N/A | Yes  No | |  |
| (c) | If visual examination was extended beyond two refueling outages or 48 months as allowed by Table ISTD‑4252‑1, determine whether the frequency of snubber visual examination was extended to a 10‑year interval through the use of Code Case OMN‑13, “Requirements for Extending Snubber Inservice Visual Examination Interval at LWR Power Plants.” | Yes  No  N/A | Yes  No | |  |
| **b.** | **Inspection Sampling of Selected Snubbers from Snubber Program (continued)** | | | | |
| 1. | Snubber Inservice Visual Examination (continued) | | | | |
| (d) | Review the visual examination records and walk down the selected snubbers. During the walkdowns, look for any deficiencies, such as physical damage, loose bolts, leakage, corrosion, or degradation. Compare the walkdown observations to the actual visual examination records maintained by the licensee. As applicable, determine why any degraded conditions exist and why the licensee’s record and observed condition may not identical. |  | | Yes  No |  |
| 2. | Snubber Inservice Testing | | | | |
| (a) | Determine whether the total population of snubbers for testing is considered to be one DTPG (Defined Test Plan Group) or multiple DTPGs based on their size, design, application, or type (hydraulic or mechanical). (Note: The ASME OM Code allows different DTPGs for snubber testing.) | Single  Multiple | | Yes  No |  |
| (b) | Determine whether the selected snubbers are part of defined DTPGs. (Note: The ASME OM Code requires a defined DTPG for all snubbers.) | Yes  No | | Yes  No |  |
| **b.** | **Inspection Sampling of Selected Snubbers from Snubber Program (continued)** | | | | |
| 2. | Snubber Inservice Testing (continued) | | | | |
| (c) | For PWRs, if the selected snubbers are attached to steam generators (SGs) or reactor coolant pumps (RCPs), determine whether these snubbers are tested as part of a separate group or DTPG containing only SG and RCP snubbers as required by the ASME OM Code. | Yes  No  N/A | Yes  No | |  |
| (d) | As applicable, when testing records for selected snubbers show test failures, determine whether an additional sample at least one‑half the size of the initial sample was tested as required by the ASME OM Code or any other NRC approved alternative(s). | Yes  No  N/A | Yes  No | |  |
| (e) | Optionally, observe the actual testing of the selected snubbers and determine whether the noted test parameters (e.g., activation, release rate, and drag force). | Yes  No  N/A | Yes  No | |  |
| (f) | Review the test records of selected sample snubbers and determine whether deficiencies, failures, or anomalies were identified during testing. | Yes  No | Yes  No | |  |
| **b.** | **Inspection Sampling of Selected Snubbers from Snubber Program (continued)** | | | | |
| 2. | Snubber Inservice Testing (continued) | | | | |
| (g) | If the licensee is using the ASME OM Code Case OMN‑15, “Requirement for Extending the Snubber Operational Readiness Testing Interval at LWR Power Plants,” to extend the inservice testing interval, determine whether the use of this Code Case has been approved by the NRC. (Note: Currently Regulatory Guide (RG) 1.192, “Operation and Maintenance Code Case Acceptability, ASME OM Code,” dated June 2003, does not list Code Case OMN‑15 as an approved Code Case for use. The licensee may only use Code Case OMN‑15 if such use has been authorized by the NRC at the licensee’s request.) | Yes  No  N/A | Yes  No | |  |
| 3. | Snubber Service Life Monitoring (SLM) |  |  | |  |
| (a) | Determine whether the selected snubbers are in an SLM program. | Yes  No | Yes  No | |  |
| (b) | Determine whether the maintenance activities for the selected snubbers are recorded and included in the SLM program. | Yes  No | Yes  No | |  |
| **c.** | **Problem Identification and Resolution** | | | | |
| Verify that the licensee has entered the problems identified during the inspection and testing of snubbers in the licensee’s corrective‑action program. Verify that the licensee is identifying issues at an appropriate threshold when entering them in the corrective‑action program. Verify that problems included in the licensee’s corrective‑action program are properly addressed for resolution. See Inspection Procedure 71152, “Problem Identification and Resolution,” for additional guidance. |  | Yes  No | |  |

Attachment 2 ‑ Revision History for Temporary Instruction 2515/189,

“Inspection to Determine Compliance of Dynamic Restraint (Snubber) Program with

10 CFR 50.55a Regulatory Requirements for Inservice Examination and Testing of Snubbers”

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Commitment Tracking Number | Accession Number  Issue Date  Change Notice | Description of Change | Training Required and Completion Date | Comment and Feedback Resolution Accession Number |
|  | ML12156A241  09/25/13  CN 13-025 | Initial issuance. Researched commitments for 4 years and found none. |  | [ML13266A379](https://nrodrp.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML13266A379) |