



# Nuclear Industry Check Valve Regulatory Activities

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# Topics

- 10 CFR 50.55a Rulemaking Activities
- Lessons Learned to Improve Check Valve (CV) Condition Monitoring



# 10 CFR 50.55a IST Rulemaking Activities

- ASME OM Code Cases (Revision 39 rule) with Regulatory Guide (RG) 1.192, Final Rule
- ASME *Operation and Maintenance of Nuclear Power Plants* (OM Code), 2020 Edition, Final Rule
- Inservice Testing (IST)/Inservice Inspection (ISI) Program Code of Record (COR) Interval and ASME OM Code Case Proposed Rule (Revision 40)
- ASME OM Code, 2022 Edition, Proposed Rule



## ASME OM Code Cases (Rev. 39 rule)

- Final Rule issued March 3, 2022, in *Federal Register* (87 FR 11934).
- RG 1.192 (Revision 4), “Operation and Maintenance Code Case Acceptability, ASME OM Code,” incorporated by reference in 10 CFR 50.55a with final rule.
- Acceptability of ASME OM Code Cases addressed in RG 1.192 (Revision 4) up to Code Case OMN-27.



# ASME OM Code 2020 Edition Final Rule

- Final rule issued on October 27, 2022 (effective 11-28-2022) in 87 FR 65128
- 50.55a changes include:
  - Incorporated by reference 2020 Edition of ASME OM Code.
  - Removed 2011 Addenda and 2015 Edition of OM Code.
  - Accepted Subsection ISTE (2020 Edition) without conditions.
  - Clarified 50.55a(f)(4) and (g)(4) for snubbers.
  - Added 50.55a(f)(7) to require IST Program Plan submittals.
  - Revised 50.55a(b)(3)(xi) to allow increased flexibility for the valve position verification schedule for valves not susceptible to stem-disk separation by directly accepting Code Case OMN-28; and to allow schedule flexibility for initial implementation of ISTC-3700 as supplemented by (b)(3)(xi) where justification available for review.



# **IST/ISI Program Code of Record (COR) Interval and ASME OM Code Case Proposed Rule (Revision 40)**

## SECY-21-0029

- In SECY-21-0029 dated March 15, 2021 (ML20273A286), the NRC staff requested Commission approval to initiate a proposed rulemaking plan that would amend 10 CFR 50.55a to extend the COR interval for IST and ISI programs.
- The proposed rulemaking plan included the following:
  - Prepare a proposed rule to increase from 10-year COR interval to 20-year COR interval for licensees that have updated their IST/ISI Programs to the 2019 Edition of the ASME BPV Code and the 2020 Edition of the ASME OM Code
  - Prepare a proposed rule to extend the COR interval from 20 years to 24 years in the future if ASME increases ISI interval to 12 years
  - Request delegation of signature authority for these rulemakings to the Executive Director for Operations (EDO)
- Provided other information on 10 CFR 50.55a streamlining efforts.





## SRM-21-0029

- Commission issued Staff Requirements Memorandum SRM-21-0029 on November 8, 2021 (ML21312A490) approving both proposed rulemakings.
- Commission approved delegation of the signature authority for these two rulemakings to the EDO.
- Commission stated that the NRC staff should move expeditiously to implement the remaining EMBARK 10 CFR 50.55a streamlining recommendations.



# Changes to SECY-21-0029 Plan

- NRC staff proposed to combine IST/ISI COR interval rulemaking with ASME Code Case Revision 40 rulemaking.
- In 2022, ASME published BPV Code Case N-921 and OM Code Case OMN-31, which allow 12-year IST and ISI program intervals, respectively, as an alternative to the 10-year intervals currently required by the ASME Codes. ASME requested Code Case N-921 be included in the Revision 40 rulemaking (ML22046A112).
- With certain conditions, the inclusion of these code cases would create an option for a licensee to implement either a 10-year or a 12-year IST/ISI program interval. To be consistent and aligned, the same option needed to be in place for the COR interval.
- Therefore, the NRC staff determined the need to inform the Commission of the planned rulemaking changes from the original plan described in SECY-21-0029.



## SECY-22-0075

- On August 1, 2022, the NRC staff sent Informational Paper SECY-22-0075 (ML22124A178) to the Commission.
- In SECY-22-0075, the NRC staff explained the changes to the plan described in SECY-21-0029 and how the staff planned to develop the proposed rule.
- Three major changes were:
  - Combine the two proposed rulemakings into one rulemaking
  - Make conforming changes to 10 CFR Part 50, Appendix J
  - Propose conforming and clarifying changes to address issues encountered during the development of the proposed rule



# Proposed COR Rule (Revision 40)

- NRC issued proposed COR rule on March 6, 2023 (88 FR 13717)
- NRC held a public meeting on March 20, 2023, to discuss the proposed rule (meeting summary ML23083B303).
- Public comment period extended to June 16, 2023.
- NRC presentation slides (ML23068A026) and unofficial redline version of the proposed rule (ML23073A279) are available to the public.
- Proposed rule includes NRC regulatory guides that accept ASME Code Cases, including OM Code Cases OMN-28 through 31, with applicable conditions.
- NRC staff are reviewing public comments on the proposed rule.
- Issuance of the final rule is planned for mid-2024.



# ASME OM Code (2022 Edition) Proposed Rule

- NRC staff has initiated preparation of a proposed rule to incorporate by reference the 2022 Edition of the ASME OM Code into 10 CFR 50.55a.
- NRC staff is evaluating whether any new or modified conditions are needed when the 2022 Edition of the ASME OM Code is incorporated by reference in 10 CFR 50.55a
- Proposed rule planned to be issued in 2023.



# Lessons Learned to Improve Check Valve (CV) Condition Monitoring



# ASME OM Code, Appendix II

- ASME OM Code, Appendix II, establishes high-level requirements for implementing and maintaining CV condition monitoring (CM) program.
- Owner shall perform Appendix II analysis of test and maintenance history of CVs or groups of CVs in order to establish a basis for specifying IST, examination, and preventive maintenance activities.
- Analysis (II-3000) shall include:
  - Identify any common failure or maintenance patterns
  - Analyze patterns to determine significance and identify potential failure mechanisms
- Appendix II includes requirements for condition monitoring activities (II-4000), corrective maintenance (II-5000), and documentation (II-6000).



# Check Valve CM Lessons Learned

- ASME OM Code, Appendix II, allows significant flexibility in developing a check valve CM program in lieu of specific ASME OM Code IST requirements.
- Safety significance of check valves should be considered when establishing the CM program.
- Operating experience has revealed that the general requirements in Appendix II need to be carefully addressed when developing a check valve CM program that will be effective in assessing the CV operational readiness. For example, CM programs with only seat leakage testing for high-risk CVs might be re-evaluated to determine if additional monitoring is advisable.



# Conclusion

- NRC has issued a proposed rule to consider extension of IST/ISI Code of record intervals, and update RGs to accept recent ASME Code Cases.
- ASME OM Code, Appendix II, allows flexibility in developing a condition monitoring program for check valves, but care must be taken to provide reasonable assurance of the operational readiness of check valves to perform their safety functions.
- ASME OM Code committee for check valves should review Appendix II for additional condition monitoring provisions where appropriate.



# QUESTIONS?

...and an announcement  
that the NRC is **HIRING!**  
Openings are available  
here:



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