

**STATUS OF NRC ACTIVITIES OF POTENTIAL INTEREST
TO OM STANDARDS COMMITTEE**

**Robert Wolfgang, Senior Mechanical Engineer
Mechanical Engineering and Inservice Testing Branch
Division of Engineering and External Hazards
NRC Office of Nuclear Reactor Regulation**

**ASME OM Code Committee Meeting on December 9-11, 2020
Virtual Meeting**

10 CFR 50.55a Rulemaking

Title 10 of the *Code of Federal Regulations* (10 CFR) in Section 50.55a, "Codes and standards," currently incorporates by reference the 2015 and 2017 Editions of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants*, Division 1, OM Code: Section IST (OM Code), the 2015 and 2017 Editions of the ASME *Boiler and Pressure Vessel Code* (BPV Code), Section XI, and the 2015 and 2017 Editions of the ASME BPV Code, Section III, with conditions. Section 50.55a also incorporates by reference selected previous editions and addenda of the ASME OM and BPV Codes, with conditions.

The scope of the current proposed rulemaking to amend 10 CFR 50.55a includes:

2019 Edition to the ASME BPV Code, Section III, Division 1, and Section XI, Division 1, with conditions; and

2020 Edition to Division 1 of the ASME OM Code, with conditions.

The proposed rulemaking for these Code editions is scheduled to be published in the *Federal Register* in the spring of 2021, with a 60-day public comment period. The final rulemaking is currently scheduled to be published in the spring of 2022.

Specific items of interest in the proposed rulemaking related to the OM Code being considered include:

1. Remove the incorporation by reference of the 2011 Addenda of the ASME OM Code from 10 CFR 50.55a(1)(iv)(B)(2) and consequently remove the condition on the use of the 2011 Addenda specified in 10 CFR 50.55a(b)(3)(vii) as well as the reference to the 2011 Addenda in 10 CFR 50.55a(b)(3)(ix).
2. Remove the incorporation by reference of the 2015 Edition of the ASME OM Code from 10 CFR 50.55a(a)(1)(iv)(C)(2) and the reference to the 2015 Edition in 10 CFR 50.55a(b)(3)(ix).
3. Remove the condition on the use of Subsection ISTB in the 2011 Addenda of the ASME OM Code based on the removal of its incorporation by reference in 10 CFR 50.55a.

4. Incorporate by reference Subsection ISTE in the 2020 ASME OM Code Edition without conditions.
5. Modify 10 CFR 50.55a(f)(4) to clarify the relationship between 50.55a(f)(4) and (g)(4) regarding the inservice testing (IST) or inservice inspection (ISI) programs for snubbers. Include a provision that for snubbers, inservice examination, testing, and service life monitoring for the IST or ISI program must meet the inservice examination and testing requirements set forth in the applicable ASME OM Code or ASME BPV Code, Section XI, as specified in 10 CFR 50.55a(b)(3)(v)(A) and (B).
6. In light of the removal of the IST Program Plan submittal requirement from the 2020 Edition of the ASME OM Code, add 10 CFR 50.55a(f)(7) to require nuclear power plant applicants and licensees to submit their IST Plans and interim IST Plan updates related to pumps and valves, and IST Plans and interim Plan updates related to snubber examination and testing to the NRC.
7. Consideration of proposed relaxation of the interval for position indication testing required in ISTC-3700 for valves that are not susceptible to stem-disk separation.

Regulatory Guide (RG) Update – OM Code Case Acceptability

Revision 3 of RG 1.192, Revision 38 of RG 1.84, and Revision 19 of RG 1.147 address the acceptability of code cases published in the 2015 and 2017 Editions of the ASME OM Code and the ASME BPV Code, Sections III and XI code cases listed in Supplement 11 to the 2010 Edition and Supplements 0 through 7 to the 2013 Edition of the ASME BPV Code. In addition, there are six code cases selected from supplements to the 2015 Edition of the ASME BPV Code and two code cases selected from supplements to the 2017 Edition of the ASME BPV Code. The current NRC regulations in 10 CFR 50.55a incorporate by reference these specific revisions to RGs 1.192, 1.84, and 1.147.

The NRC staff has completed a review of the new (Code Cases OMN-22 through OMN-27) and revised code cases published with the 2020 Edition of the ASME OM Code and published in C&S Connect, and the 2019 Edition of Sections III and XI of the ASME BPV Code. The proposed rulemaking and RGs for these code cases are scheduled to be published in the *Federal Register* in early 2021, with a 60-day comment period. The final rulemaking and RGs for these code cases are currently scheduled to be published in early 2022.

ASME has issued Errata Record Number 20-2591 to correct the Applicability Index for ASME OM Cases. Code Case OMN-15 was corrected from Revision 2 to Revision 3.

Target Rock Safety Relief Valve Setpoint Drift Issue

Some licensees continue to find multiple safety relief valves (SRVs) with setpoint drift outside the Technical Specification (TS) limits each operating cycle, despite decades of corrective action. The staff's primary focus is on 2-stage Target Rock SRVs but other valve types are also affected. Based on the historic Licensee Event Report (LER) data, 2-stage Target Rock SRV setpoints have been drifting high between 3 and 10 percent (which is higher than the 3 percent typically allowed by TS), with the highest observed case drifting 18.5 percent. Further, several

plants have a majority of SRVs drifting beyond the TS limits, which challenges the requirement that the SRVs will remain operable throughout the cycle. The NRC determined that the safety significance is low, consistent with the conclusion reached in the closeout of Generic Issue GI-55, "Improved Reliability of Target Rock Safety Relief Valves," in 1999. The staff is taking efforts to restore consistency between the plants' licensing basis (and TSs) and the expected SRV setpoint drift. The staff discussed this issue with the Boiling Water Reactor Owners Group (BWROG) in several public meetings. The BWROG is pursuing a licensing approach to base TS compliance on how the total complement of valves performs instead of focusing on individual setpoints. The BWROG is also testing (1) new methods of applying platinum coating to the pilot valve disks, and (2) different coating materials for the disks in an attempt to reduce the corrosion bonding that causes the setpoint drift.

Focused Engineering Inspections for Power Operated Valves

The NRC staff has been working on an initiative to update the Reactor Oversight Process (ROP) Engineering Inspections to improve effectiveness and efficiency of engineering inspections. Of interest is the development of a new inspection process for power operated valves (POVs). The primary focus of the inspection remains unchanged. The inspection will focus on operating experience, aging management, facility changes, and risk. The inspection is intended to verify the licensee's implementation of NRC-approved engineering programs (e.g., motor-operated valves (MOVs), air-operated valves (AOVs), and environmental qualification (EQ) programs). The inspections for POV evaluate capability as it relates to valve/actuator design and safety function, design basis conditions, uncertainties applied, diagnostics, weak link evaluations, design basis capability tests, and design basis capability. To prepare for the POV inspection process, the NRC staff has developed and completed training for the regional inspectors. The POV inspections focus on MOVs, AOVs, hydraulic-operated valves, solenoid-operated valves, and pyrotechnic-actuated (squib) valves. The inspection activity examines selected valves from multiple systems. The selection process includes risk, historical performance, and various valve sizes, types, and manufacturers. Once the valves have been selected, the inspection examines design, testing, and maintenance. The updated POV inspection process commenced in early 2020. As of October 28, 2020, approximately 16 inspections have been completed at various sites. Due to the onslaught of the COVID-19 pandemic, the inspections primarily have been performed virtually and will continue until it is considered safe to return to the normal inspection process. A total of eighteen sites are scheduled for inspection for the year 2020. The NRC staff is planning a public meeting for December 8, 2020, to discuss the lessons learned from the POV inspections to date.

NUREG-1482

The NRC staff issued Revision 3 to NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," in July 2020 (ADAMS Accession Number ML2020A473) to reflect the most recent ASME OM Code editions and addenda incorporated by reference in the NRC regulations with the applicable conditions, and also to include IST lessons learned since issuance of Revision 2 to NUREG-1482. In Revision 3 to NUREG-1482, the NRC staff includes the 10 CFR 50.55a rulemaking to incorporate by reference the 2017 Edition of the ASME OM Code.

Valve Position Indication Condition

The NRC staff is considering options to document a clarification of the NRC position on the

implementation of the condition in 10 CFR 50.55a(b)(3)(xi) to supplement the valve position indication requirements in paragraph ISTC-3700, "Position Verification Testing," of the ASME OM Code, Subsection ISTC, "Inservice Testing of Valves in Water-Cooled Reactor Nuclear Power Plants." ASME OM Code, Subsection ISTC, paragraph ISTC-3700, states:

Valves with remote position indicators shall be observed locally at least once every 2 years to verify that valve operation is accurately indicated. Where practicable, this local observation should be supplemented by other indications such as use of flow meters or other suitable instrumentation to verify obturator position. These observations need not be concurrent. Where local observation is not possible, other indications shall be used for verification of valve operation.

The NRC regulations in 10 CFR 50.55a(b)(3)(xi) "OM condition: Valve Position Indication" state:

When implementing paragraph ISTC-3700, "Position Verification Testing," in the ASME OM Code, 2012 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation to provide assurance of proper obturator position for valves with remote position indication within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies.

The *Federal Register* notice for the final rule including 10 CFR 50.55a(b)(3)(xi) at 82 FR 32934, 32950-32951 states, in part, that the:

NRC is adding § 50.55a(b)(3)(xi) to emphasize the provisions in OM Code, 2012 Edition, Subsection ISTC-3700, 'Position Verification Testing,' to verify that valve obturator position is accurately indicated.

The *Federal Register* notice later states that the:

NRC is requiring this condition for the implementation of the 2012 Edition of the OM Code for the 120-month IST interval in order to allow additional time for licensees to comply with this condition.

Without this additional time, licensees would have been required to comply with 10 CFR 50.55a(b)(3)(xi) 30 days after publication of the final rule in the *Federal Register*. At a public meeting in advance of the issuance of the final rule, this reference to the 2012 Edition of the ASME OM Code was indicated to provide the additional time needed to allow licensees to prepare for implementing 10 CFR 50.55a(b)(3)(xi) when tests to satisfy paragraph ISTC-3700 were conducted after their IST Program had been updated to the 2012 Edition (or later edition) of the ASME OM Code. In response to a public comment on the proposed rule (ADAMS Accession No. ML16130A531 on pages 37 and 38), the NRC staff stated that it would not allow an additional 24 months beyond implementation of the 2012 Edition of the ASME OM Code to perform the valve position indication tests for licensees approaching their scheduled 120-month IST Program update.

The NRC position remains that component test intervals do not reset when a licensee updates its IST Program to the latest edition of the ASME OM Code every 120 months. One of the

bases of this position is that valves with 10-year or longer test intervals would never be required to be tested, because the test interval would be reset every 120 months with the latest edition of the ASME OM Code. Further, if allowed to reset, quarterly tests for all applicable valves would become due 3 months after the implementation date of the latest edition of the ASME OM Code at the 120-month update, or be in violation of the ASME OM Code as incorporated by reference in 10 CFR 50.55a. Similar issues would also occur for other components with the same test interval. Therefore, the requirement in 10 CFR 50.55a(b)(3)(xi) to supplement valve position indication applies to the performance of the ISTC-3700 test during the period in which that test is required to occur when implementing the 2012 Edition or later edition of the ASME OM Code.

ASME Interpretations

As part of the ASME Code process, users may post inquiries if there are portions of the applicable ASME Code that are confusing or unclear. ASME then prepares Interpretations. The NRC does not endorse ASME Interpretations, and the requirements in 10 CFR 50.55a continue to apply. The NRC staff addressed ASME Interpretations in NUREG-1482 for the ASME OM Code, and in NRC Inspection Manual Part 9900 for the ASME BPV Code, Sections III and XI. The NRC staff is considering whether additional guidance is needed.

Potential ASME OM Code Improvements

The NRC staff suggests that the ASME OM Code committees consider the following questions for potential improvements to the OM Code:

1. ISTC-3700: Are there language changes to ISTC-3700 to allow 10 CFR 50.55a(b)(3)(xi) to be removed or modified for future ASME OM Code editions? For example, can valves not susceptible to stem-disk separation be addressed in ISTC-3700 as proposed in the draft Code Case?
2. ISTC-3100: Should there be a maximum allowed time interval between the single preservice testing (PST) program test for each valve and the initial IST test for that valve?
3. ISTC-5230: Should the OM Code be clarified to indicate that vacuum breakers need to be tested in accordance with Appendix I to the ASME OM Code only if they are capacity certified by the National Board or a similar organization?
4. ISTA-3170: If a licensee applies a grace period for a specific tested component as allowed in ISTA-3170, what is the due date for the next test of that component? For example, if a valve has a quarterly test interval but grace is applied, is the next test due 3 months after the original quarterly due date or is the next test due 3 months after the actual test date that included the grace period?
5. ISTB-3550: Should ISTB-3550 be revised to allow level instrumentation to be used in demonstrating the required pump flow during testing?
6. Non-Water Cooled Reactors: The ASME OM Code is only applicable to water-cooled reactors. Is ASME able to develop IST provisions for components in non-water cooled reactors to support the planned development of non-water cooled reactors? As a start, this might be a new Part XX in the Standard or Guide sections.

ASME-Related Generic Communications and Regulatory Guides

ASME-related generic communications and regulatory guides issued by (or in the process of being issued by) the NRC since the last report (July 2020) to the OM Standards Committee are listed below:

Bulletins (BLs)

None

Generic Letters (GLs)

None

Information Notices (INs)

IN 2020-02 (9/15/2020), Flex Diesel Generator Operational Challenges

**Regulatory Issue Summaries
(RISs)**

None

Regulatory Guides (RGs)

None

The full text of any of these NRC generic communications can be accessed by visiting the NRC's public website at <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/index.html>.