APPENDIX D
GUIDANCE ON REGULATORY ANALYSIS RELATED TO AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE RULES

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ABBREVIATIONS AND ACRONYMS

ASME	American Society of Mechanical Engineers
BPV	boiler and pressure vessel
CC	concrete containment
CFR	*Code of Federal Regulations*
FR	*Federal Register*
ISI	inservice inspection
IST	inservice testing
MC	metal containment
NRC	U.S. Nuclear Regulatory Commission
OM	operation and maintenance

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D.1 ASME CODE RULEMAKINGS

Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a, "Codes and Standards," requires nuclear power plant licensees to construct, inspect, and test certain components following specified codes of the American Society of Mechanical Engineers (ASME). Under 10 CFR 50.55a, licensees must construct ASME Boiler and Pressure Vessel (BPV) Code Class 1, 2, and 3 components following the rules of the ASME BPV Code (Section III, Division 1). Under 10 CFR 50.55a, licensees must inspect Class 1, 2, and 3, Class MC (metal containment), and Class CC (concrete containment) components following the rules of the ASME BPV Code (Section XI, Division 1). Finally, under 10 CFR 50.55a, licensees must test Class 1, 2, and 3 pumps and valves under the rules provided in the ASME Code for Operation and Maintenance of Nuclear Power Plants (OM Code). From time to time, the U.S. Nuclear Regulatory Commission (NRC) amends 10 CFR 50.55a to incorporate by reference later editions and addenda of Section III, Division 1, of the ASME BPV Code; Section XI, Division 1, of the ASME BPV Code; and the ASME OM Code. These rulemakings are referred to as ASME Code rulemakings.

The NRC's convention for regulatory analysis for most rulemakings is to perform a regulatory analysis for the proposed and final versions of a rule. However, for NRC rulemakings incorporating by reference into 10 CFR 50.55a the latest ASME Boiler and Pressure Vessel Code (BPV Code) and the ASME Operations and Maintenance Code (OM Code), the NRC utilizes a different approach in determining whether to prepare a regulatory analysis to support the proposed or final ASME Code rulemaking.

The NRC need not prepare a regulatory analysis for those ASME Code rulemakings that do not impose additional conditions or exceptions beyond those in the updated ASME Code provisions. The NRC believes this is appropriate for several reasons:

- The ASME codes are voluntary consensus standards, developed with participation by interested parties, including representatives from the NRC, the nuclear power industry, and licensees.

- It has been longstanding NRC policy to incorporate later versions of the ASME Code into its regulations. Further, it is a condition of NRC licenses to adopt revisions to some parts of the ASME Code on a periodic basis: 10 CFR 50.55a requires licensees to revise their inservice inspection (ISI) and inservice testing (IST) programs every 120 months to the latest edition and addenda of Section XI of the ASME BPV Code and the ASME OM Code incorporated by reference into 10 CFR 50.55a. Through this practice, the NRC has established an expectation that future revisions to the ASME Code, developed through the consensus standards process, will be incorporated by reference into the NRC's regulations. Thus, licensees know when receiving their operating licenses that incorporating updates to the ASME Code is part of the regulatory process and does not constitute a backfit or a forward fit.

- Endorsement of the ASME Code is consistent with the National Technology Transfer and Advancement Act, inasmuch as the NRC has determined that there are sound regulatory reasons for establishing regulatory requirements for design, maintenance, inservice inspection, and inservice testing by rulemaking.

- In a typical incorporation of the ASME Code and associated Code Cases, the NRC incorporation by reference can involve hundreds, if not thousands, of individual provisions. Evaluating the benefit *vis-à-vis* the cost of each individual provision in a regulatory analysis would be prohibitive, and the value gained by performing such an exercise would be limited.

However, where the NRC : (i) imposes conditions or exceptions on the use of an ASME Code provision already incorporated by the NRC;(ii) incorporates a new provision of the ASME Code that is substantially different from existing requirements; or (iii) requires that licensees adopt provisions of the ASME Code on an expedited schedule (i.e., sooner than the 120 month updating interval in 10 CFR 50.55a[1]), then the NRC prepares a regulatory analysis that is limited to the consideration of those provisions or circumstances for which the NRC is imposing conditions. These three cases represent situations where a regulatory analysis would be justified as a matter of regulatory policy and would require consideration of backfitting and forward fitting as described in NUREG-1409, “Backfitting Guidelines.” By contrast, the NRC need not prepare a regulatory analysis if the NRC is proposing a new condition on a new Code provision that is not present in an earlier Code Edition.

Finally, where the NRC determines that one or more new ASME Code provisions are a significant departure from the overall approach embodied in the comparable provisions of the existing NRC-incorporated Code Editions[2], then the NRC will prepare a regulatory analysis for those Code provisions constituting such a significant departure. The NRC’s rationale is that the regulatory approach embodied in 10 CFR 50.55a contemplated an evolutionary approach to ASME Code changes, with incremental changes to technical requirements within the purview of the Code. When the ASME Code Edition adopts a significantly new provision representing a fundamental paradigm shift in technical or regulatory terms, then a regulatory analysis is appropriate and should be performed by the NRC.[3]

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1 Examples in which the NRC required implementation of the later ASME BPV or OM Code provisions on an expedited basis are provided in the final rule (64 FR 51370; September 22, 1999) that incorporated by reference the 1989 Addenda through the 1996 Addenda of Section III and Section XI of the ASME BPV Code, and the 1995 Edition with the 1996 Addenda of the ASME OM Code and the final rule that incorporated by reference in 10 CFR 50.55a the 1986 Addenda through the 1989 Edition of Section III and Section XI of the ASME BPV Code (57 FR 34666; August 6, 1992).

2 Such cases are rare and should be considered exceptional. One example is the NRC’s initial endorsement of Subsections IWE and IWL of Section XI, which imposed containment inspection requirements on operating reactors for the first time. The final rule (Volume 61 of the *Federal Register* (FR), page 41303 (61 FR 41303); August 8, 1996) incorporated by reference in 10 CFR 50.55a the 1992 Edition with the 1992 Addenda of Subsections IWL and IWE of Section XI to require that containments be routinely inspected to detect defects that could compromise a containment’s structural integrity. This action expanded the scope of 10 CFR 50.55a to include components not considered by the existing regulations to be within the scope of in service inspections.

3 An example of this case is presented in the portion of the final rule in which the NRC adopted requirements for dissimilar metal piping weld ultrasonic testing examination coverage that were different from those in the ASME Code (67 FR 60520; September 26, 2002).

D.2 REFERENCES

American Society of Mechanical Engineers (ASME), "Boiler and Pressure Vessel Code," New York, NY, Current Edition.

ASME, "Operation and Maintenance of Nuclear Power Plants Code," New York, NY, Current Edition.

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NRC, "Backfitting Guidelines," NUREG-1409. Available at https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/.