A Discussion on the Removal of Conditions on ASME OM Code Mandatory Appendix III

Bill Densmore

Fellow Engineer

Westinghouse **VISION & VALUES**

together

we advance technology
& services to power a
clean, carbon-free future.

- Customer Focus & Innovation
- Speed & Passion to Win
- Teamwork & Accountability

Safety • Quality • Integrity • Trust

Westinghouse

Agenda

- Motivation for this Paper
- Discussion on Writing by Committee
- Development and modifications to ASME OM Code
- U.S. Regulatory Process for Review and Incorporation by Reference
- Conditions on Mandatory Appendix III
  - 10CFR50.55a(b)(3)(ii)(A) MOV Diagnostic Test Interval
  - 10CFR50.55a(b)(3)(ii)(B) MOV Testing Impact on Risk
  - 10CFR50.55a(b)(3)(ii)(C) MOV Risk Categorization
  - 10CFR50.55a(b)(3)(ii)(D) MOV Stroke Times

Motivation for this Paper

- The Nuclear ~~Renaissance~~ Resurgence is upon us
  - More NSSS Plant designs have been approved in the last 5 years than in the last 30
  - Dozens of startup companies have designs for small modular (paper) reactors
  - Classic Plant Designers are signing FEED, Bridge, Long Lead Contracts
- With that, comes a lot of hiring of early career professionals
  - New Grad
  - Experienced but New to Nuclear
  - Experienced Nuclear, but not Company Culture
- What we do is special and unique
- Knowledge Transfer is as important now than ever before

But how do we do that quickly, cost effectively, consistently?

Motivation for this Paper

- Taking a Tiered Approach to Engineering Qualifications
  - Level 1 is Entry Level/Beginner -> Level 4 is a Subject Matter Expert
    - Level 1 requires an understanding of:
      - What Codes & Standards are
      - How they're developed
      - Why they're supported
      - How they're endorsed/incorporated by reference
    - A thorough review of NRC2025-157753 followed by a Q&A interview by the SME will become our minimum standard for a Level 1 qualification in ASME OM Code Programs - Valve Subdiscipline Skill

Discussion on Writing by Committee

"Writing-by-committee is in theory a fine thing, based on the notion that none of us is as smart as all of us. But in practice, none of us is as dumb as all of us, no matter the collective intelligence of the individuals involved.

Good writing-by-committee is virtually an impossibility. You could bring Mark Twain, Jane Austen, Miguel Cervantes, Toni Morrison and Leo Tolstoy into a room to write a novel together, but the only certainty would be that it would be a terrible one.

Still, writing-by-committee is a necessary evil."

- Rob Ashgar, *Forbes*, December 2019

Development and modifications to OM Code

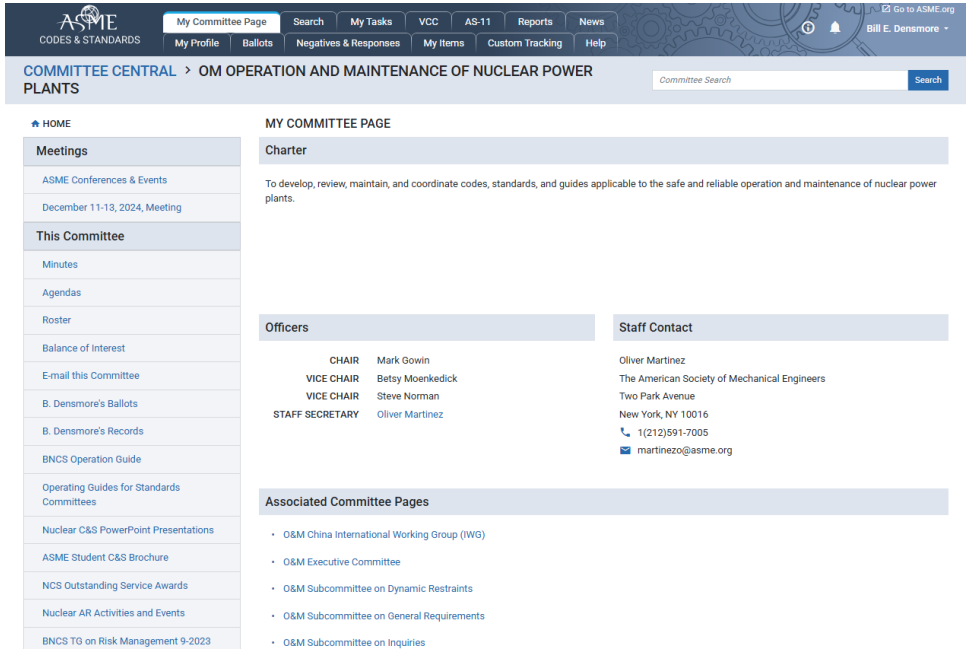
C&S Connect - Web-based workflow management system for committee communication, rosters, and code change management.

Ballots – Explicitly show the language to be changed, added, deleted

White Papers – Accompany Ballots, explain the need/issue, basis of the change, highlight potential issues.

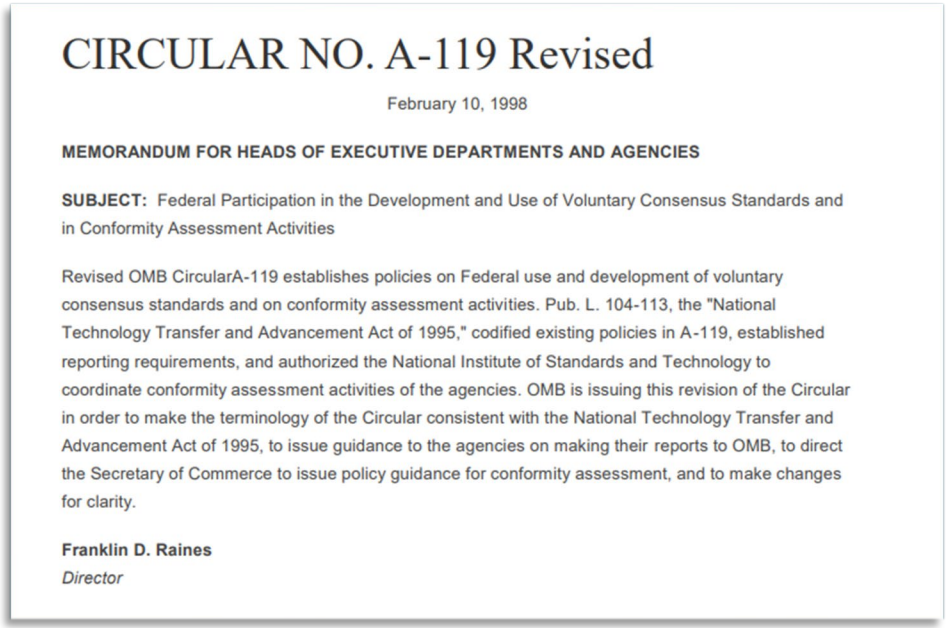
Ballot Approval Process:

- SG/SC Review and Comment Ballot
- Global Review & Comment Ballot
- First Consideration Ballot
- Reconsideration Ballot



Westinghouse

U.S. Regulatory Process for Review and Incorporation by Reference



CIRCULAR NO. A-119 Revised

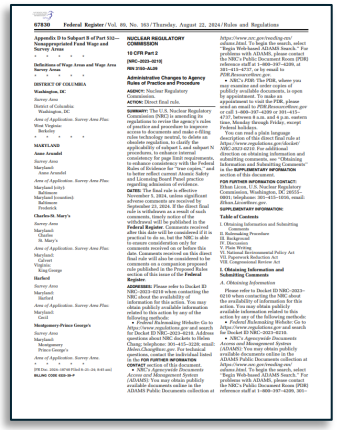
February 10, 1998

MEMORANDUM FOR HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

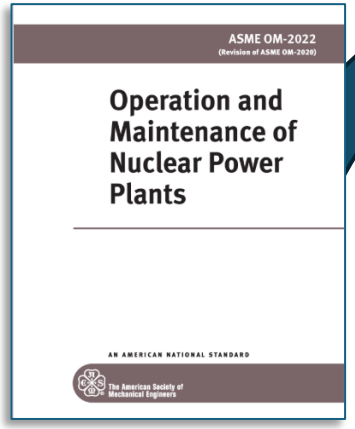
SUBJECT: Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities

Revised OMB CircularA-119 establishes policies on Federal use and development of voluntary consensus standards and on conformity assessment activities. Pub. L. 104-113, the "National Technology Transfer and Advancement Act of 1995," codified existing policies in A-119, established reporting requirements, and authorized the National Institute of Standards and Technology to coordinate conformity assessment activities of the agencies. OMB is issuing this revision of the Circular in order to make the terminology of the Circular consistent with the National Technology Transfer and Advancement Act of 1995, to issue guidance to the agencies on making their reports to OMB, to direct the Secretary of Commerce to issue policy guidance for conformity assessment, and to make changes for clarity.

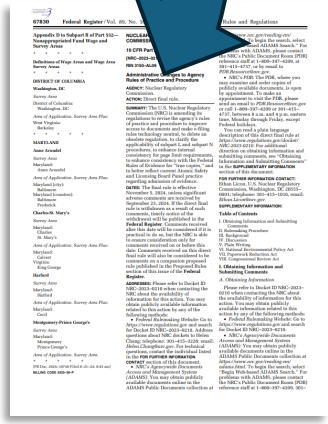
Franklin D. Raines
Director



Final Rulemaking



New Code Edition



Initial Rulemaking

Public Comment Period

Westinghouse

Conditions on Mandatory Appendix III

- 10CFR50.55a(b)(3)(ii)(A) MOV Diagnostic Test Interval
- 10CFR50.55a(b)(3)(ii)(B) MOV Testing Impact on Risk
- 10CFR50.55a(b)(3)(ii)(C) MOV Risk Categorization
- 10CFR50.55a(b)(3)(ii)(D) MOV Stroke Times

Conditions on Mandatory Appendix III
10CFR50.55a(b)(3)(ii)(A) MOV Diagnostic Test Interval

§ III-3310 "Inservice Test Interval"

The inservice test interval determination shall include the following:

a) The inservice test interval shall be determined in accordance with para. III-6640.

b) If insufficient data exist to determine the inservice test interval in accordance with para. III-6440, then MOV inservice testing shall be conducted every two refueling cycles or 3 yr (whichever is longer) until sufficient data exist, from an applicable MOV or MOV group, to justify a longer service interval.

c) The maximum inservice test interval shall not exceed 10 yr. MOV inservice tests conducted per para. III-3400 may be used to satisfy this requirement.

10CFR50.55a(b)(3)(ii)(A) "MOV Diagnostic Test Interval"

Licensees shall evaluate the adequacy of the diagnostic test interval established for MOVs within the scope of ASME OM Cod, Appendix III, not later than 5 years or three refueling outages (whichever is longer) from initial implementation of ASME OM Code, Appendix III

§ III-3310(b)

If insufficient data exist to determine the inservice test interval in accordance with III-6400, the MOV inservice testing shall be conducted every two refueling cycles or 3 yr (whichever is longer) until sufficient data exist, from an applicable MOV or MOV group, to justify a longer inservice test interval. *Not later than 5 yr or three refueling outages (whichever is longer) after initial implementation of this Appendix, the Owner shall evaluate the MOV diagnostic test interval per III-6440.*

Westinghouse

Conditions on Mandatory Appendix III
10CFR50.55a(b)(3)(ii)(B) MOV Testing Impact on Risk

§ III-3620 "Additional Exercising Requirements"

The Owner shall consider more frequent exercising requirements for MOVs in any of the following categories:

a) MOVs with high risk significance

b) MOVs with adverse or harsh environmental conditions or

c) MOVs with any abnormal characteristics (operational, design, or maintenance conditions)

10CFR50.55a(b)(3)(ii)(B) MOV testing impact on risk. Licensees shall ensure that the potential increase in core damage frequency and large early release frequency associated with the extension is acceptably small when extending exercise test intervals for high risk MOVs beyond a quarterly frequency.

§ III-3620

a) MOVs with high risk significance *as required by para. III-3721*

b) MOVs with adverse or harsh environmental conditions or

c) MOVs with any abnormal characteristics (operational, design, or maintenance conditions)

§ III-3721 HSSC MOVs. HSSC MOVs shall be tested in accordance with III-3300 and exercised in accordance with III-3600. HSSC MOVs that can be operated during plant operation shall be exercised quarterly, unless the potential increase in CDF and LERF associated with a longer exercise interval is small.

Conditions on Mandatory Appendix III
10CFR50.55a(b)(3)(ii)(C) MOV Risk Categorization

§ III-3720 "Risk-Informed Criteria"
Each MOV shall be evaluated and categorized using a documented risk ranking methodology. This Appendix provides test requirements for high and low safety significant components (HSSC/LSSC) categories. If an Owner established more than two risk categories, then the Owner shall evaluate the intermediate SSCs and select HSSC or LSSC test requirements for those intermediate SSCs.

10CFR50.55a(b)(3)(ii)(C) MOV risk categorization. When applying Appendix III to the ASME OM Code, licensees shall categorize MOVs according to their safety significance using the methodology described in ASME OM Code Case OMN-3, "Requirements for Safety Significance Categorization of Components Using Risk Insights for Inservice Testing of LWR Power Plants," subject to the conditions applicable to OMN-3 which are set forth in Regulatory Guide 1.192, or using an MOV risk ranking methodology accepted by the NRC on a plant-specific or industry-wide basis in accordance with the conditions in the applicable safety evaluation.

§ III-3720

Each MOV shall be evaluated and categorized using a documented risk ranking methodology *that has been accepted by the regulatory authorities having jurisdiction at the plant site.* This Appendix provides test requirements for high and low safety significant component (HSSC/LSSC) categories. If an Owner established more than two risk categories, then the Owner shall evaluate the intermediate SSCs and select HSSC or LSSC test requirements for those intermediate SSCs.

Conditions on Mandatory Appendix III
10CFR50.55a(b)(3)(ii)(D) MOV Stroke Times

§ III-3610 "Normal Exercising Requirements"
All MOVs, within the scope of this Appendix, shall be full cycle exercised at least once per refueling cycle with the maximum time between exercises to be not greater than 24 months. Full cycle operation of an MOV, as a result of normal plant operations or Code requirements, may be considered an exercise of the MOV, if documented. If full stroke exercising of an MOV is not practical during plant operation or cold shutdown outages, full stroke exercising shall be performed during the plant's refueling outage.

10CFR50.55a(b)(3)(ii)(D) MOV stroke time.
When applying Paragraph III-3600, "MOV Exercising Requirements," of Appendix III to the ASME OM Code, licensees shall verify that the stroke time of MOVs specified in plant technical specifications satisfies the assumptions in the plant's safety analyses.

§ III-3610

All MOVs, within the scope of this Appendix, shall be full cycle exercised at least once per refueling cycle with the maximum time between exercises to be not greater than 24 months. Full cycle operation of an MOV, as a result of normal plant operations or Code requirements, may be considered an exercise of the MOV, if documented. If full stroke exercising of an MOV is not practical during plant operation or cold shutdown outages, full stroke exercising shall be performed during the plant's refueling outage.

NO CHANGE

Westinghouse

A Discussion on the Removal of Conditions on ASME OM Code Mandatory Appendix III

Bill Densmore

Fellow Engineer