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United States Nuclear Regulatory Commission
Protecting People and the Environment

Discussion of Background for Need to Clarify Requirements for Operational Leakage

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Acronyms

- American Society of Mechanical Engineers (ASME)
- Boiler and Pressure Vessel Code (Code)
- Title 10 of the Code of Federal Regulations (§)
- Systems, Structures and Components (SSC)
- Nuclear Energy Institute (NEI)
- Agencywide Documents Access and Management System (ADAMS) Accession Numbers (MLXXXXXXXX)

Outline

- License Requirements
- NRC Policy
- NEI & ASME Code Interaction History
- Clarification Needs
- Rulemaking

License Requirements

- Systems Structures and Components (SSC) Necessary for Safety
- Structural Integrity Requirement
- Technical Specifications
  - Specify the SSC Required for Safe Operation
  - Operability Requirements for Safety

NRC Policy

- How to demonstrate operability when leakage is detected during operation?
- Options to address structural integrity requirements to support technical specification operability decision?
- How to allow flexibility?

Generic Communications

- Generic Letter 90-05
- Generic Letter 91-18
  - NRC Inspection Manual Part 9900
- Regulatory Information Summary 05-20
  - Revision 0 – 2005
  - Revision 1 – 2008
  - Revision 2 – 2015
    - Inspection Manual Chapter 0326
    - Revision 2 - 2019

NRC, NEI & ASME Interactions

- 2006
  - NRC Letter to ASME Regarding NEI White Paper
  - NEI White Paper, Treatment of Operational Leakage from ASME Class 2 & 3 Components (ML061320347)
  - Revision 1 of NEI White Paper, (ML063250490)
  - ASME Response to develop a Project Team (ML061780064)
  - NRC request to be updated on progress. (ML062080708)

NRC, NEI & ASME Interactions

- 2008
  - ASME letter responding (ML081280920)
  - NRC letter to ASME Code (ML081830454)
  - ASME Code response letter (ML14338A296)
    - Laid out the ASME Code plan to address the issue
- 2015
  - ASME Code update letter (ML15099A624)

NRC, NEI & ASME Interactions

- 2015
  - NRC response letter (ML15188A057)
    - NRC noted that the issue for operational leakage still remained open
    - NRC would evaluate the necessity of additional regulatory activities to address operational leakage.
- 2018
  - NEI proposes NEI 18-03, Operability Determination
  - NRC establishes Operability Initiative
- 2019
  - NRC issues Inspection Manual Chapter 0326, Rev. 2

Inspection Manual Chapter 0326

- 08.13 Operational Leakage from ASME Code Class 1, 2, and 3 Components
  - The NRC staff does not consider through-wall leakage in components to be in accordance with the intent of the ASME Code or construction code, unless intentionally designed to be there such as sparger flow holes. Therefore, components with through-wall leakage would not meet ASME Section XI or construction code requirements.
  - Direct Link to Generic Letter 90-05

Clarification Needs

- Items where no clarification is needed:
  - Licensed Design is clear
  - Technical Specifications for leakage established
  - NRC guidance is consistent regarding need for structural integrity to be maintained for operability
- Options to various inputs which NRC staff believes has caused a proposed need for clarification
  - ASME Code applicability
  - 10 CFR 50.69

10 CFR 50.69 Applicability

- Risk-informed categorization and treatment of structures, systems and components for nuclear power reactors
- § 50.69(b)(v)
  - Inservice Inspection, and repair and replacement (with the exception of fracture toughness), requirements for ASME Class 2 and Class 3 SSCs in § 50.55a(g), Preservice and Inservice Inspection Requirements
  - No change to design requirements

Regulatory Clarification

- Licensee questions on requirements
  - Applicability
  - Latest guidance
  - Need for proposed alternative
- Proposed rule wording
  - Rule to update to 2019 Edition of ASME Code
  - Clarifies treatment of operational leakage found in Class 1, 2, 3, MC, RISC-1, or RISC-3 components
  - Current scope of rule language is a clarification only
  - Does not change longstanding policy and requirements
  - Currently no backfit anticipated or intended

Rulemaking Process

- Proposed rule language will be available for public comment
- Additional opportunities to engage with public as consistent with the NRC Principles of Good Regulation
  - Openness
  - Efficiency
  - Clarity
- Overall process expected to take 2 years to complete

Discussion

Questions?

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