Proposed New 10 CFR 50.55a Condition on Operational Leakage

Areas of Concern with Proposed New 10 CFR 50.55a Condition on Operational Leakage (Tom Basso – NEI)

- ASME BPV Section XI Scope
- NEI 18-03 Operability Determination - Flaw Evaluation/Operational Leakage
- 10 CFR 50.69 Implementation
- Backfit Rule Review

Pressure Boundary Leakage

ASME BPV Section XI Role

ASME - Pressure Boundary Leakage

ASME BPV Section XI

- Boiler & Pressure Vessel Code (BPV)
  - Section XI, Inservice Inspection
  - Division 1, Light-Water Cooled Plants
  - 2017 Edition (latest endorsed in 10CFR50.55a)
- IWA-1100, Scope

  "This Division provides requirements for inservice inspection and testing of light-water-cooled nuclear power plants."
- IWA-1320, Classifications

  "(a) Application of the rules of this Division shall be governed by the group classification criteria of the regulatory authority having jurisdiction at the plant site."
- IWA-1400, Owners Responsibility

  "The responsibilities of the owner shall include:

  (a) determination of the appropriate Code class(es) for each component of the plant…"

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ASME BPV Section XI

- Tables IWx-2500-1, Examination Categories
  - Specific Examination and Testing Requirements
  - Acceptance Standards References (IWx-3000) for Itemized Examinations and Tests
- IWA-3100, Evaluation

  "(a) Evaluation shall be made of flaws detected during an inservice examination as required by Article IWx-3000."
- IWA-3300, Flaw Characterization

  "(a) Flaws detected by the preservice and inservice examinations shall be sized..."
- IWA-4000, Repair/Replacement Activities
  - IWA-4110, Scope

    "(a) The requirements of this Article apply regardless of the reason for the repair/replacement activity or the method that detected the condition requiring the repair/replacement activity."
  - IWA-4120, Applicability

    "(a) The requirements of this Article apply to items classified by the Owner in accordance with IWA-1400(a) as Code Class 1, 2, 3, MC, or CC, and their associated supports."

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ASME BPV Section XI

- ASME Code Interpretations (background)
  - **Foreword**: "Only the Committee [ASME BVP XI Standards Committee] has the authority to provide official interpretations of this Code".
  - **Process**: The Committee interprets ASME BPV XI in accordance with established ASME procedures and policies.
  - **Types**:
    - Requirement – Point to current words in the Code to provide basis for interpretation.
    - Intent – Help define what the Code means, and need an accompanying Code Change to clarify the intent.

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ASME BPV Section XI

- ASME Code Interpretations (applicable) – Requirement Interpretations
  - *XI-1-89-67*

    Question: Is it a requirement of Section XI that additional examinations be performed for flaws detected outside the course of an inservice examination…?

    Reply: Section XI does not address additional exams for flaws detected outside the course of an inservice examination.

  - *XI-1-92-03*

    Question: Do the provisions of IWA-5250 apply to leakage found at times other than during a system pressure test?

    Reply: No.

  - *XI-1-92-19*

    Question 1: For leakage identified during the conduct of a visual examination performed in conjunction with a Section XI required pressure test, are corrective measures required in accordance with IWA-5250(a) prior to continued service?

    Reply 1: Yes.

    Question 2: Does leakage identified during the conduct of normal plant operation, but not in conjunction with a Section XI required pressure test, require corrective measures in accordance with IWA-5250(a)?

    Reply 2: No. Section XI, IWA-5250(a) does not apply during normal plant operation.

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ASME BPV Section XI

- Operability Determinations
  - ASME policy is based solely on structural integrity.
  - It has been long standing practice that ASME BPV XI does not make system or component Operability Determinations in the context of Plant Technical Specifications.
  - Multiple considerations, aspects, and sources, which may including ASME Code inspections and evaluations, are factored into operability determinations.

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ASME BPV Section XI

- ASME BPV Code Companion Guide
  - "The referenced interpretations… include several examples of how ASME Section XI does not provide requirements for the evaluation and acceptance of flaws identified by means other than a required inservice inspection or examination."
- Conclusions
  - ASME, through consistent application of policy and procedures, has maintained that the inservice inspection rules of Section XI apply only to Section XI inservice inspections and tests.
  - Any additional application of the Code, such as application to conditions identified during the performance of plant operation, maintenance, walkdowns, or other activities, are beyond the direct jurisdiction and requirements of ASME Codes & Standards.

NEI 18-03 (Marty Murphy – Xcel Energy)

- NEI 18-03, “Operability Determination” contains guidance on actions to assess operability when a deficient condition is identified on Technical Specification Systems, Structures, and Components (TS SSC)
  - It was written in parallel with a revision to NRC inspection manual chapter on operability determinations, IMC-0326
  - IMC-0326 contains a staff position that ASME Sect. XI Code class 1, 2, and 3 requirements are applicable at all time based on 10 CFR 50.55a
    - This requires licensees to assess structural integrity through ASME Code acceptance criteria or NRC approved Code cases or alternative methods to support operability determinations
  - NEI 18-03 was written to account for the NRC staff position
    - Industry position is that TS operability and ASME Code requirements are two separate regulations and should be independently assessed

10 CFR 50.69 Implementation (Shannon Rafferty-Czincila – Exelon Nuclear)

- Proposed condition references RISC-1 and RISC-3 components
- 10 CFR 50.69 excludes RISC-3 components from:
  - Inservice testing requirements of 10 CFR 50.55a(f)
  - Inservice inspection, and repair and replacement requirements for ASME Class 2 and 3 SSCs in 10 CFR 50.55a(g)
  - Electrical component quality and qualification requirements in 10 CFR 50.55a(h)
- Proposed Condition alters the requirements of 10 CFR 50.69 by invoking a new requirement under 10 CFR 50.55a
- Under 50.69 RISC-3 components (Class 2 or 3) no longer have to be evaluated under the rules of ASME Section XI for repair/replacement and repairs may use commercial non-Q/non-nuclear code material
  - Structural evaluation would require prior NRC approval under the provisions of the proposed condition for these RISC-3 components

Backfit Rule Review (Cheryl Gayheart – Southern Co.)

- Proposed Condition would impose a new generic requirement for addressing Operational Leakage, substantially expanding the applicability of the ASME code
- This new generic requirement would require modification of procedures to operate plants, therefore this rule change meets the definition of backfitting (10 CFR 50.109(a)(1)).
  - Proposed Condition was presented as a clarification, but there is no existing regulation or code requirement being clarified
  - Codifying IMC-0326 guidance into a new condition constitutes imposition of a new generic requirement
- If this new requirement is included in the revision to 50.55a, a backfitting analysis would be required *(i.e.*, substantial increase in safety or security, and direct/indirect costs are justified)