

Nuclear Energy Institute's Proposals to Apply Risk-Insights to 10 CFR 50.59

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Purpose & Agenda

- NRC – Provide feedback on the Nuclear Energy Institute's (NEI's) August 5, 2020 public meeting presentation
- NEI – Present Focus Area #3
- Agenda
 - 12:00pm – 12:10pm Opening Comments/Introductions
 - 12:10pm – 12:20pm NRC Presentation
 - 12:20pm – 12:45pm NRC Working Group (WG) & NEI/Industry Discussion
 - 12:45pm – 1:00pm NEI Presentation
 - 1:00pm – 1:40pm NRC WG & NEI/Industry Discussion
 - 1:40pm – 1:50pm Stakeholder Participation
 - 1:50pm – 2:00pm Actions Documented/Closing Remarks

Focus Area #1

“More than Minimal” Concept

- NRC agrees with NEI’s assessment:
 - Opportunities exist to clarify how to apply risk insights to criteria (i) and (ii); and
 - A change from one frequency category to a more frequent category is an example of a change that results in more than a minimal increase

Focus Area #1 (Cont'd)

- NRC staff believes that:
 - Core damage frequency (CDF) and large early release frequency (LERF) cannot alone be an acceptable measure to determine if a proposed change to a facility represents a more than minimal increase

Focus Area #1 (Cont'd)

- In the 1999 Statement of Considerations, the Commission stated that the use of probabilistic risk assessment (PRA) (e.g., CDF and LERF alone) in 50.59 requires further rulemaking
- Staff position:
 - Changes, tests, or experiments may prompt changes to PRA inputs;
 - The resultant PRA inputs may offset each other; and
 - The resultant CDF and/or LERF may not reflect all changes being made which does not meet the requirements of 50.59.

Focus Area #1 (Cont'd)

- Staff agrees with NEI – there are certain “PRA techniques” that are aligned with the 1999 Statement of Considerations
- PRA techniques can be used to inform criteria (i) and (ii) evaluations.
- Examples may include:
 - Failure Modes and Effects Analysis;
 - Fault Trees;
 - Event Trees;
 - Dose Assessment Methods; and
 - Consequence Analysis Methods.

Focus Area #1 (Cont'd)

- NRC staff has the following question for NEI:
 - What is meant by "Other criteria based upon risk insights..."?
 - Slide 20 of NEI's August 5, 2020 presentation

Focus Area #2

General Design Criteria (GDC) Language

- NEI stated on August 5, 2020:
 - “PRA tools [techniques] may be appropriately used to justify acceptance of proposed changes while remaining consistent with the GDCs”
- NRC staff has the following questions for NEI:
 - How would the use of PRA tools [techniques] ensure continued alignment with the licensing bases?
 - What criteria would be used to ensure changes to structures, systems, and components (SSCs), processes, and procedures remain consistent with the licensing bases?

Focus Area #2 (cont'd)

- NEI stated on August 5, 2020:
 - “Some GDCs have absolute requirements (e.g. GDC-19) whereas others have flexibility in their requirements (e.g. “designed with appropriate margin”, “appropriate controls”, “high probability”)
- NRC staff has the following questions:
 - What measures would be used to preserve the design aspects of the licensing bases, such as ASME codes, vendor design standard, etc.?
 - What criteria would be used to define the terminology presented in the licensing bases associated with some of the GDCs, such as:
 - “appropriate margin” or “sufficient margin;”
 - “extremely low probability;” and
 - “acceptably low levels?”

Focus Area #2 (cont'd)

- In Example 1, NEI stated on August 5, 2020:
 - “GDC-2 discusses the design basis for the specified SSCs shall reflect ‘the importance of the safety functions to be performed’”
 - “Risk values may be appropriate to quantify the importance of the safety functions to be performed.”
- NRC notes:
 - The Vogtle Tornado Missile Risk Evaluator (TMRE) methodology was a LAR reviewed and approved by NRC;
 - NRC validated the licensee’s PRA acceptability as part of the LAR approval;
 - Methodology applies to as found, legacy conditions; and
 - Methodology used RG 1.174, with CDF & LERF as risk metrics.
- Question:
 - How does this example demonstrate the ability to use risk values to satisfy compliance with the licensing bases (GDCs) without prior NRC approval?

Focus Area #2 (cont'd)

- Staff agrees with NEI's assessment that risk insights cannot be applied for some GDCs as shown in Example #2 for GDC-19 (Control Room: personnel dose limit)

Inspection Manual Chapter (IMC) 0335

Development

- Staff currently drafting a 10 CFR 50.59-related IMC
- Regional comments will be solicited, per standard process
- Draft will be presented in future public meeting to solicit external stakeholder comments
- Implementation, followed by NRC Regional/Headquarter staff training, to occur in 1st Calendar Quarter 2021

Path Forward

- NRC and NEI/Industry to continue engaging to resolve issues
- Staff anticipates the next public meeting in November 2020
 - NRC to provide feedback on NEI's 10/8 presentation (Focus Area #3 – Methods of Evaluation)
 - NEI response to items raised during this meeting
 - Presentation of draft IMC