

DEVELOPING GENERIC GUIDANCE FOR RESOLVING 10 CFR 50.59 EVALUATION CRITERIA FOR DI&C MODIFICATIONS

United States Nuclear Regulatory Commission
(USNRC)

Providing Regulatory Certainty for Performing
Digital I&C Upgrades under 10 CFR 50.59 in 2017

Public Meeting on NEI 96-07 Draft Appendix D, Section 4
(March 08, 2017)

Background

- **2002:** NRC issued RIS 2002-22 to endorse NEI-01-01
- **2010-2015:** Inspection Findings related to performance of DI&C modifications
- **2013:** NRC issued Summary of Concerns with NEI 01-01, as result of inspection findings
- **2016:** NEI submitted draft Appendix D to replace NEI-01-01
- **2016:** NEI submitted partial-draft NEI 16-16 as technical guidance for addressing CCF
- **2017:** NEI informed NRC staff that regulatory certainty on 10 CFR 50.59 Evaluations for upgrades to systems such as chillers, feedwater controls, and distributed control systems are of the *highest priority*

Limitations of Bounding/Coping Analysis

- NRC Staff began to develop an ISG based solely upon bounding/coping concepts to address the key 50.59 evaluation criteria such as 2 & 6.
- Staff determined that for the **subset of SSCs Industry has indicated are a priority**, an ISG based on bounding/coping concepts would not necessarily constitute adequate generic guidance that meets schedule needs because:
 - Concepts may not be generically applicable based on variations in level of detail in individual licensing bases
 - Limitations of bounding/coping alone to address questions of likelihood/frequency
 - Potentially requires redefining how 50.59 evaluation criteria are currently understood, or rulemaking to modify criteria language
- Staff findings align with Industry findings presented during 02/08/2017 public meeting (ADAMS Accession# ML17004A259)

Limitations of Bounding/Coping Analysis

- The staff believes that bounding and coping concepts can still be used for some upgrades in which consideration of CCF failure is part of the licensing basis
- The staff also believes that coping concepts and consideration of layers of defense (i.e. if multiple systems failed) can still provide an adequate basis for responding to the 10 CFR 50.59 safety evaluation criteria.

PATH FORWARD GOALS

- Staff remains committed to providing durable guidance by this summer for use in addressing 10 CFR 50.59 evaluation criteria for a large subset of DI&C upgrades
- Staff has adjusted its strategy to address Industry's stated concerns and upgrade examples that have been provided:
 - New guidance should allow for high priority DI&C control system modifications under 10 CFR 50.59
 - Any guidance that does not resolve concerns about 50.59 Evaluation Criteria (i.e. 2 & 6) is a non-starter
 - Durable guidance should be available by Summer 2017

DEVELOP IMPROVED QUALITATIVE ASSESSMENT GUIDANCE TO RESOLVE 50.59 EVALUATION CRITERIA

- NEI 96-07 (endorsed by RG 1.187) and NEI 01-01 (endorsed by RIS 2002-22) allow for qualitative assessments to address 50.59 Evaluation Criteria (e.g. 2 & 6)
- Staff Intent: Develop improved guidance defining acceptable Qualitative Assessment justifications (using NEI 01-01 guidance as a baseline) for safety auxiliary systems and other non-safety high priority control systems by this summer

AREAS OF FOCUS

- Start with guidance already within Sections 4 , 5, and Appendix A of NEI-01-01
- Identify what the NRC staff considers as adequate **qualitative justification** for use in responding to Criteria 2 and 6 of 10 CFR 50.59:
 - Integration of Effective Design Attributes
 - Software and Hardware Development Quality Processes
 - Defense-in-Depth, based on the particular modification and plant configuration
- Clarification on design measures & criteria for using failure analysis (Section 5.1) and system dependability (Section 5.3)
- Staff wants to engage with Industry on what constitutes an adequate qualitative assessment

DELIVERY VEHICLE FOR NEW CONTENT

- Staff intends to clarify the endorsement of NEI 01-01 previously issued in RIS 2002-22 to incorporate the improved qualitative assessment guidance:
 - Best short term option to achieve Summer 2017 timeframe
 - Updating/clarifying pre-existing guidance is recommended
 - Plants are already using NEI 01-01 and RIS 2002-22
 - Will require a shorter formal public comment period than normal
 - Staff will engage with Industry in development of the qualitative assessment guidance
- NEI also has the option to incorporate similar guidance into NEI 16-16
- NRC will still continue to review of Appendix D and NEI 16-16

Schedule

- Draft RIS to NEI for comment – End of March 2017
- Public Meeting #1 – Mid-April 2017
- FRN RIS Issue (public comment period) – Mid-May 2017
- Public Meeting #2 – Early June 2017
- CRGR Brief – Mid June 2017
- Issue Final RIS – July 2017