

# NRC Staff Perspective

NEI 96-07, Appendix D, Draft Rev. 0

June 15, 2016

# Outline

- NRC Review Schedule
- Initial Observations from April 28<sup>th</sup>
- Current NRC Draft Comments
- Path Forward

# Current NRC Schedule

- April 4: Received proposed Appendix D
- April 28: Public Meeting – Initial Observations and Significant Issues on Appendix D
- June 15: Public Meeting
- June/July: Issue comments
- September: Receive updated Appendix D
- December: Issue NRC Decision

# Significant Issues

(from April 28<sup>th</sup> Public Meeting)

- Consistency of Terminology and Guidance
  - New Terminology
  - Existing Guidance & Staff Positions
- Reference to Implementing Technical Guidance

# Overview - Current Draft NRC Comments

- The NRC staff is currently finalizing its comments on Draft Revision 0 of Appendix D. The NRC staff's largest concerns include: (1) consistency with other guidance (including definitions), and (2) the introduction and use of new terminology.
- The comments are categorized under the major headings of Consistency, Technical Approaches & Terminology, and Other Concerns.

# NRC Draft Comment Summary (1 of 3)

<b>Consistency</b>	
<p><b>Consistency w/ NEI 96-07</b></p> <p><b>Adverse Change</b></p>	<p>The guidance in Appendix D has extended the use/meaning of terms used in NEI 96-07 (e.g., fundamental change). In addition Appendix D proposes some guidance that conflicts with the guidance in NEI 96-07 (e.g., whether a digital upgrade to a safety system is adverse and requires a LAR).</p> <p>In certain cases, Appendix D appears to be relaxing (i.e., is an adverse change from) NEI 96-07; for example, guidance is provided to bound an AOO with a previously existing accident. Since fuel design limits must be maintained for all AOOs, and Accidents allow fuel damage, any new AOO would be bounded by some accident; this is clearly not the intent of NEI 96-07.</p>
<p><b>Form &amp; Content</b></p>	<p>Appendix D is intended to augment and supplement NEI 96-07 Revision 1 for digital I&amp;C modifications; NEI should update Appendix D to follow the same form as NEI 96-07, so as to make the concurrent use of these documents easier (i.e., Form). In addition, the comments include certain suggestions for additional material (i.e., Content).</p>
<p><b>Internal Consistency</b></p>	<p>Appendix D is not always internally consistent. For example, two different examples provide different explanation of whether information presentation can cause an accident. NEI should verify consistency or explain differences.</p>
<p><b>Consistency w/ Other Guidance</b></p>	<p>The position taken is inconsistent with a position in other guidance. For example, Appendix D says that a Commercial Grade Dedication (CGD) is “equivalent to compliance with the regulatory guidance and industry standards normally applicable to safety-related digital,” while NRC guidance document say the software development process must be considered as part of CGD. NEI should verify consistency or explain deviations.</p>

# NRC Draft Comment Summary (2 of 3)

<b>Technical Approaches &amp; Terminology</b>	
The NRC Staff's concern with terminology was expressed in Issue No. 1.	
<b>Inconsistent Terminology</b>	There are new terms used (e.g., Variety, Layers of Design), and it is not clear how these new terms are consistent with existing guidance. In addition several terms are defined differently than in other guidance (e.g. Common Cause Failure, Accident). NEI should update terminology to be consistent with current consensus terminology or justify and explain relationship and differences with current terminology.
<b>CCF Unlikely &amp; Not Unlikely</b>	This concern is in part a concern with new terminology, but it is mostly a concern with the conceptual framework for demonstrating that a design has sufficient diversity (i.e., the analysis methodology of postulating CCFs). A change that would reduce system/equipment redundancy, diversity, separation or independence may require a LAR per NEI 96-07 Section 4.3.2, Example No. 6. The NRC Staff's concern with the CCF Characterization in NEI 01-01 was expressed in Issue Nos. 5 and 9.
<b>Coping and Susceptibility Analysis</b>	Most Safety Analysis Reports (SARs) do not include either a Coping Analysis or a CCF Susceptibility Analysis for analog I&C; therefore, their use in the implementation of digital technology may need to be considered as a new technical methodology when evaluating if modification requires a LAR. Furthermore, agreement must be reached on how these analyses should be treated in the screening and evaluation processes.

# NRC Draft Comment Summary (3 of 3)

<b>Other Concerns</b> - technical concerns not addressed	
<b>HSI</b>	The prior NRC comments on NEI 01-01 did not include HSI concerns, however, Appendix D provides new HIS related guidance which requires a thorough review, for example, it is not clear how the screening and evaluation processes deals with errors of cognition that arise from changes to HSI / I&C (such as confusion in operators caused by bottlenecks / delays that occasionally occur in from digitally processed signals).
<b>Cyber Security</b>	The NRC Staff's concern with the Security Considerations in NEI 01-01 was expressed in Issue No. 4. Appendix D has no guidance on licensing aspects of cyber security (e.g., under applicability).
<b>Operating Experience</b>	The NRC Staff's concern with operating experience in NEI 01-01 was expressed in Issue No. 3. It is not clear how the new guidance will reduce the types of errors seen in the implementation of NEI 01-01.

See Meeting Handout of Selected  
NRC Comments

# Path Forward

- NRC and NEI Schedule
- Public Meeting July/August (yes/no)
- Topics for next meeting
- Action Items from this meeting