



# Open Discussion on 10 CFR 50.59 Digital Upgrades

Bernard Dittman, Electronics Engineer (Digital I&C)  
Instrumentation and Controls Branch (EICB)  
Division of Engineering  
Office of Nuclear Reactor Regulation

Prepared for the  
Public Meeting with NEI & Industry on Digital I&C Topics

December 4, 2012  
NEI, Washington, DC USA

The information and conclusions presented herein do not necessarily represent the views or positions of the U.S. Nuclear Regulatory Commission. Neither the U.S. Government nor any agency thereof, nor any employee, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for any third party's use of this information.

# Outline

- Goals
- Presentations
  - NRC I&C Staff Perspective
  - NEI Discussion of NEI 01-01
  - NRC Region Experiences
- Open Discussion

# Goals

- Make digital upgrades that are pursued under 10 CFR 50.59 better for all concerned: the public, licensees, equipment vendors, and the regulators.
- Ensure that whenever NEI 01-01 is followed, it will result in design documentation for all SSCs affected by the digital upgrade that adequately addresses potential failure modes, their effects in terms of health, safety and security, and the plant's diversity and defense-in-depth to cope with these failure modes and their effects.
- Ensure that this design documentation:
  - Demonstrates that the plant can cope with any remaining vulnerabilities resulting from a digital upgrade
  - Supports NRC reviews under public scrutiny
  - Ensures public health, safety and security has been adequately maintained or improved

- The preferred approach is for NEI to revise NEI 01-01, to resolve all staff concerns, so that the staff could endorse it through a Regulatory Guide without further qualification, exception, or clarification.
- The revision should better ensure that any latent defect in a digital upgrade does not have the potential to:
  - Place the plant in an unanalyzed condition; or
  - Expose a vulnerability for which the plant has not been designed to adequately cope.
- The revision should not rely on unquantifiable software reliability or complexity assessments that run contrary to established NRC positions.

# Proposed Path Forward

- Itemize existing issues
- Develop resolutions to issues
- Industry proposes explicit revisions to NEI 01-01 -  
Exact wording for proposed additions, deletions and modifications.
- NRC provides feedback on NEI 01-01 statements (existing and proposed revisions) that—should the statements remain in the final revision—would result in a staff Regulatory Guide exception or clarification.
- Prior to a formal submittal requesting NRC endorsement, revisions should continue until no NEI 01-01 statement remains that would result in an NRC Regulatory Guide exception or clarification.
- NRC produces a Regulatory Guide endorsing the revised NEI 01-01.

## In Closing

- Thanks for this opportunity and your time & attention.
- Throughout this effort feel free to contact me with any questions or clarifications that you may need to support it.
- As we continue to ensure public health, safety and security, let's make the revision to NEI 01-01 and its endorsement a success story that benefits all stakeholders.