



NewClear Day Inc.

U.S. Nuclear Regulatory Commission
Meeting to Discuss Revision 3 to the
Integrated Action Plan

Input Regarding DI&C Modernization Plan #4B *A Practitioner's Point of View*

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Need to Replace Current Framework Based on IEEE Standards

- Fragmented IEEE Standards no longer serve nuclear needs
 - Software standards not tailored to nuclear industry (i.e., not integrated, incomplete, dated with respect to technologies, and weak on technical topics)
 - Nuclear system standards are a collection of technical requirements but silent on overall system design process
- Trends in IEEE standards make it more difficult to endorse for NRC regulatory framework
- IEC nuclear sector standards part of larger family of safety standards
 - IEC nuclear sector standards are organized in a logical framework (i.e., whole set is integrated and addresses relevant technologies and applications)
 - Each standard is complete with respect to associated V-model (i.e., system, hardware, software, and FPGA/CPLD development V-models)
 - Standards address process documentation and technical requirements in graded requirements based on importance of functionality
- IEC Standards are up to date and address nuclear industry needs



Need to Update Treatment of Digital I&C Common Cause Failures

- Fundamental changes in the state of affairs in digital I&C warrants a reassessment of SRM-SECY-93-087
 - Revisit underlying concerns described in SECY-91-292 that drove conservative treatment of digital CCF more than 25 years ago
 - BTP 7-19 has been revised several times to expand scope and apply more conservative methods at the same time digital technology has been improving
 - Revisit changes to BTP 7-19 and realign guidance on scope and evaluation methods
 - Realize that conservative treatment of digital CCF has resulted in more complex system architectures and the adverse consequences of the added complexity are not really considered in the regulatory decisions
 - Consider comments and suggestions made by ACRS Digital I&C Subcommittee in their June 20th meeting
 - Consider whether 10 CFR 50.62 needs to be updated to accommodate a more holistic treatment of digital I&C solutions
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