

Integrated Action Plan for the Modernization of NRC's Digital I&C Regulatory Infrastructure

Meeting to Solicit Public and Stakeholder Input
March 30, 2016

Agenda

- Welcome & Introductions
- DI&C Regulatory Infrastructure Modernization Strategy
- Overview of Proposed DI&C Integrated Action Plan
- Discussion of Key Working Group Planned Actions
 - Common Cause Failure Policy and Guidance
 - Guidance for 10 CFR 50.59 Upgrades
 - IEEE Standard 603
 - IEEE Standard 7-4.3.2
 - Cyber Security
- Other Proposed Regulatory Infrastructure Actions
- Stakeholder and Public Input/Q&A's
- Meeting Recap, Proposed Follow-up Meetings
- Adjourn

DI&C Regulatory Infrastructure Modernization Strategy

John Lubinski

Acting Deputy Director

Office of Nuclear Reactor Regulation

Background

- Efforts to improve regulatory processes in the 2007-2011 time frame yielded some successes in developing improved staff review guidance (ISGs)
- Licensing and oversight experience since 2011 using the ISGs identified the need for additional improvements
- Experience in drafting a new rule to codify a version of IEEE 603 addressing digital technology shows there are still technical analysis/evaluation issues to be resolved
- Staff developed a draft DI&C Action Plan in 2015, based on stakeholder input received regarding areas where licensing and oversight improvements are needed

DI&C Regulatory Infrastructure Modernization Strategy

- Goal: Modernize the DI&C Regulatory Infrastructure to enhance NRC's capability to be more timely, efficient, effective by using clear, predictable, and flexible guidance to accommodate future technology evolutions
- Strategy:
 - Enhance requirements to be more performance-based and technology-neutral
 - Reach early alignment with stakeholders on methodologies for addressing key technical evaluation issues
 - Develop near-term policy and guidance to address issues when identified
 - Use new methods and tools to be more effective in developing technology-focused guidance
 - Integrate near-term policy & guidance with longer –term actions needed to modernize regulatory infrastructure

Overview of Proposed DI&C Integrated Action Plan

Marissa Bailey
Acting Director
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SRM-SECY-15-0160

Overview

- Develop an integrated strategy to modernize the DI&C regulatory infrastructure
- Consider the broader context of regulatory challenges (IEEE 603, 10 CR 50.59, CCF, etc.)
- Engage licensee/applicant stakeholders, IEEE, DI&C vendors, other external stakeholders
- Consider five principles in plan:
 - Management Steering Committee to oversee plan development and future activities identified in the plan
 - Any new requirements to be performance-based
 - DI&C requirements to be technology-neutral, but guidance could be tailored
 - Same requirements for operating and new reactors
 - Guidance may include technology-focused provisions

Development of Plan

- In January 2016, staff shared its draft DI&C Action Plan with stakeholders and the public
- Plan was organized as a list and rough prioritization of licensing, oversight, and infrastructure topics that need to be addressed
- NEI provided comments on that draft Action Plan on February 23, 2016
- On February 25th Commission provided directions to the staff in its SRM to SECY 15-0106

Outline of DI&C Integrated Action Plan

- Background and Plan Development
- Regulatory Challenges and Priorities
- Detailed Working Action Plans
 - Common Cause Failure
 - 50.59 Guidance
 - IEEE 603-2018: Incorporation by Reference
 - IEEE 7-4.3.2: Regulatory Guidance Update
 - Cybersecurity in Licensing
- Other Challenges and Priorities
- Integrated Schedule

Near-Term Integrated Action Plan Milestones

- February 25th – Received SRM-SECY-15-0106
- March 21st – First CCF Stakeholder Workshop
- March 24th – Issue Draft Integrated Action Plan for Comment
- March 30th - First of 2 Stakeholder Comment Interactions
- April 24th – Receive Stakeholder Comments on Draft Integrated Action Plan
- April 26th – Second CCF Stakeholder Workshop
- April 28th – First 10 CFR 50.59 Guidance Meeting
- April 2016 and forward—Work the plan until completion
- May 25th – Provide Integrated Digital I&C Strategy to the Commission

Working Group Action Plans

Common Cause Failure Action Plan

Rossnyev Alvarado, NRR/DE/EICB

Common Cause Failure Working Group

- SRM-SECY-93-087 defines criteria for addressing common mode failure. This direction is implemented in BTP 7-19.
- Re-evaluate assumptions in SECY-93-087 to consider impact of evolution in technology
- Current regulatory treatment and acceptance criteria are problematic for some I&C upgrades
- Evaluate options for updating NRC policy in light of any significant technology evolution
- Prepare technical basis paper and SECY paper
- Consider and address Stakeholder input received prior to finalizing Technical Basis Paper and SECY paper

10 CFR 50.59 Guidance Action Plan

Deirdre Spaulding-Yeoman, NRR/DE/EICB

Improve Guidance for using Digital I&C with 10 CFR 50.59 Process

- Need for clarity of mutual industry and NRC staff understanding regarding 50.59 analyses for modifications of I&C systems using digital technologies
- Identify and determine whether NRC policy or guidance may need to be modified, and identify and determine impact on NRC policy or guidance and develop remedies, where appropriate
- Upon receipt, review Appendix D to NEI 96-07 for potential endorsement in Reg Guide 1.187
- Public meeting, April 28, 2016

IEEE 603 Action Plan

Royce Beacom, NRR/DE/EICB

IEEE 603 Working Group: Action Plan

- Ensure any proposed new or revised requirements maintain the high level principles directed by the Commission in the SRM
- Evaluate if additional modernized requirements related to digital I&C are acceptable with the standard developer - IEEE/ NPEC
- Continue involvement in the IEEE/ NPEC working group in publishing the standard revisions at the biannual meetings
- Determine which version of the IEEE Standard, 2018 or 202X, to be incorporated by reference

IEEE 7-4.3.2 Action Plan

Richard Stattel, NRR/DE/EICB

IEEE 7-4.3.2 Action Plan

- Evaluate objectives for modifying the guidance presently included in RG 1.152, in consideration of IEEE-7-4.3.2-2016
- Seek feedback from IEEE on the additional conditions proposed in SECY-15-0106 for communication and independence
- Engage NEI/Stakeholders on staff's planned approach to IEEE 7-4.3.2-2016, RG1.152, and the standard Review Plan
- Determine scope for the next update to RG1.152 and to the SRP to address the current IEEE 7-4.3.2-2016 and P-1891 standards

Cyber Security Action Plan

Jonah Pezeshki, NSIR/Cyber Security Directorate

Cyber Security Design Action Plan

- Outline the process for addressing staff evaluation of voluntarily-submitted cyber security design information
 - Develop a SECY information paper summarizing planned processes to address cyber security design licensing reviews--Target date: Oct 2016
 - Update SRP (and any other related regulatory documents) to provide guidance for performing cyber security design licensing reviews
 - Keep ACRS advised of planned processes to address cyber security design licensing reviews -- ACRS Meeting currently scheduled for May 17, 2016
- Engage NEI/Licensees/Applicants/Vendors to gather stakeholder input

Other Proposed Regulatory Infrastructure Actions

Steven Arndt, NRR/DE

Other Proposed Regulatory Infrastructure Actions

- The integrated plan also incorporates a number of additional activities identified as being important to resolve for a DI&C regulatory infrastructure issue by not near term priorities
- Additional topics are needed to complete the digital I&C infrastructure modernization effort, but may either be dependent on the outcome of near-term actions, or deferred while the staff's resources are addressing the near-term priorities
- This may not be a complete list
- The staff will develop detailed working group plans when appropriate for the other areas after work progresses on the near-term priorities

Other Proposed Regulatory Infrastructure Actions

- Embedded Digital Devices (RIS in April 2016)
- Regulatory Document Infrastructure Improvements
- Guidance for Evaluation of Proposed Alternatives to Regulatory Guides and Endorsed Standards
- Digital I&C Licensing Process
- Improved Guidance for Evaluation of Highly Integrated Digital Technologies
- Improvement in Regulatory Consistency from Licensing to Inspection
- Digital I&C Topical Report Evaluation and Update Process

Facilitation Questions

- Are we focused on the correct regulatory challenges and timing?
 - Are we working on the highest priorities?
 - What is not needed?
 - What is missing?
- Are there regulatory challenges that need to have more detailed working group plans to address in near-term?
- Do we have the right scope and assumptions for detailed working group plans?
- What does near-term success look like from an external stakeholder standpoint?