

Embedded Digital Device Regulatory Issue Summary (RIS) Status

- Draft revised Embedded Digital Device (EDD) RIS issued for public comment (2nd round) June 2014
- Nine sets of public comments received
 - Organizations – NEI, EPRI
 - Utilities – FPL, STARS Alliance
 - Universities – MIT, Penn State, U. of Florida
 - Consultants – Nuclear Automation Eng., NewClearDay Inc.
- NRC staff from Task Working Group (TWG) currently addressing all public comments

Embedded Digital Device RIS TWG Addressing Public Comments

- TWG members are:
 - Representing FIVE different NRC offices
 - Mainly from I&C disciplines
 - Continuity through same members with some new members
 - Have significant nuclear plant or nuclear industry experience
- TWG members represent offices associated with:
 - New reactors (NRO)
 - Operating nuclear power reactors (NRR)
 - Non-power reactors (NRR)
 - Fuel cycle facilities (NMSS)
 - Cyber and nuclear facility security (NSIR)
 - NRC research (RES)

Embedded Digital Device RIS Introduction of the RIS

- Applies to safety-related systems and excludes common defense and security, including cyber security applications
- Raises awareness among licensees that EDDs may exist in plant or facility equipment used in safety-related applications
- Encourages identification, review, documentation, and control necessary to demonstrate quality and reliability
- Highlights possible vulnerability of equipment and systems to potential hazards like common cause failures (CCF) caused by software defects in EDDs
- Addresses the NRC technical positions and regulations for power reactors, non-power reactors, and fuel cycle facilities
- Does not provide any guidance or set any new expectations

Embedded Digital Device RIS Public Comment Highlights (Nuclear Reactors)

- The RIS Definition of an EDD that defines what electronic components are considered EDDs
- Perception of over-emphasis on diversity as only prevention or mitigation against a potential CCF
- Perception of increase in cyber security effort and cost
- Lack of needed guidance provided by RIS
- Similar equipment with EDDs in extensive successful use in industry world-wide
- How much testing is sufficient
- Perception of application of power regulations to non-power reactors

Embedded Digital Device RIS Public Comment Highlights (Fuel Cycle Facilities)

Notable Public Comments:

- Recommendation to expand the scope of the RIS by adding cyber-security related components
- Perception that NRC has set new expectations (e.g., 10 CFR 70.72 change process as applied to EDDs)

NRC Key Messages:

- Licensees/applicants should adequately address any impact EDDs have on quality and reliability of safety-related systems
- This RIS is raising awareness on the issue and is not setting any new expectations