

# NEI 01-01 Focus Team Report and Progress

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DI&C Periodic Update Meeting

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# NEI 01-01, “Guideline on Licensing Digital Upgrades”

- NEI 01-01 Focus Team
  - **Purpose:** Ensure clear criteria, scope & guidance exist for application of 10 CFR 50.59 to Digital I&C activities allowing licensees to maintain and improve margins of safety by efficiently managing component obsolescence issues.
  - **Plan:** Two new documents will supersede NEI 01-01; EPRI 3002005326 & NEI 96-07, App. D

## NEI 01-01 Focus Team Schedule

- EPRI 3002005326, “Assessing and Managing Failure Susceptibilities of DI&C Systems”
  - addresses a full range of potential digital failure and CCF contexts (for both SR & non-SR systems)
  - includes guidance on using susceptibility & coping analyses to screen & prioritize potential vulnerabilities
  - July 2015 draft in review; expect final draft in September and November publication for industry use

## NEI 01-01 Focus Team Schedule

- NEI 96-07, Appendix D, “Guideline for Application of 10 CFR 50.59 to Digital Modifications”
  - supplemental 10 CFR 50.59 (licensing) guidance to bridge any gaps to NEI 96-07, Rev. 1, “Guidelines for 10 CFR 50.59 Implementation.”
- August 2015 draft in review, expect submittal for NRC endorsement to supersede NEI 01-01 in Fall 2015

## Appendix D “Goals”

- Address NRC Letter “Summary of Concerns with NEI 01-01,” November 5, 2013
  - Concern #4 – RIS 2002-22 restrictions not adhered to and expectations not met
    - Need to ensure RIS 2002-22 restrictions are satisfied
    - Need to adequately and completely document [10 CFR 50.59] conclusions
  - Concern #8 – NEI 01-01 broad scope and content
- Produce a 10 CFR 50.59-focused guidance document that dove-tails with the EPRI technical-based guidance document

## Appendix D “Ground Rules”

- Intended Audience
  - 50.59-*qualified* (Screeners and Evaluator) individuals
  - 50.59-*experienced* individuals
- No or limited (for context) duplication of NEI 96-07 main body guidance
- No “new” guidance to further explain NEI 96-07 main body guidance or terminology (e.g., no new 50.59-related definitions)

## Appendix D Outline

- Section 1 – Introduction
- Section 2 – Definitions
- Section 3 – Screen Guidance
- Section 4 – Evaluation Guidance
- Section 5 – Examples

# Section 1 – Introduction

- Contains Administrative Information
- Sections
  - Section 1.1 – Background
  - Section 1.2 – Purpose
  - Section 1.3 – Regulatory Requirements and Commitments
  - Section 1.4 – Contents

## Section 1.2 – Purpose

- Appendix D IS...
  - Guidance to prepare 10 CFR 50.59 Screens for ALL digital modifications (includes all four Screen areas)
  - Guidance to prepare 10 CFR 50.59(c)(2) Evaluations for ALL digital modifications (includes all eight criteria)
- Appendix D IS NOT...
  - A design acceptability review guideline
  - An implementation document for technical guidance contained in EPRI 3002005326, *Assessing and Managing Failure Susceptibilities of Digital Instrumentation and Control Systems*

## Section 1.2 – Purpose

- Scope
  - Simple to complex digital activities
  - Non-I&C applications
  - Safety-related and non-safety-related
  - Digital-to-digital

## Section 1.4 – Contents

- Section 3, Screen Guidance
  - Supplements the generic guidance in the main body of NEI 96-07 for Screens (Section 4.2)
  - Both sources of guidance apply
- Section 4, Evaluation Guidance
  - Supplements the generic guidance the main body of NEI 96-07 for Evaluations (Section 4.3)
  - Both sources of guidance apply

## Section 2 – Definitions

- Definitions from the main body of NEI 96-07 are not repeated.
- **Most** definitions common to the EPRI technical guidance document are the same (see the exception below).
- The only exception is “consequences.”
  - EPRI Document ⇒ “The effects of an action or event. In this document the term refers to the [undesirable] effects of a failure or misbehavior.”
  - NEI 96-07 ⇒ “Radiological Dose”

## Section 3 – Screen Guidance

- Section 3.1 – Introduction
- Section 3.2 – Process
  - Section 3.2.1 – Facility
  - Section 3.2.2 – Procedures
  - Section 3.2.3 – Methods of Evaluation
  - Section 3.2.4 – Tests and Experiments

## Section 3.1 – Introduction

- Emphasizes the following two points:
  - Activities involving digital modifications do NOT “default” to adverse.
  - Merely because an activity involves the use of computers or software does NOT make the activity a fundamental change in how a design function is performed.

## Section 3.2 – Process

- Considers two separate aspects: *Software/Hardware* and *Human-System Interface (HSI)*
- Approach parallels the main body of NEI 96-07 (i.e., all four Screen considerations will be addressed)

## Section 3.2.3 – Methods of Evaluation

- Identifies the software portion of a digital modification as being another SSC in the facility, **NOT** a *method of evaluation*.
- Establishes that coping analyses that involve safety analyses that use the same *method of evaluation* as described in the UFSAR are not revisions or replacements of that *method of evaluation*.
- Clarifies that the use of a revised or replacement *method of evaluation* is a separate activity from the digital modification itself.

## Section 4 – Evaluation Guidance

- Introduction
- Eight 10 CFR 50.59(c)(2) Criteria
  - 4.1 – No unique guidance needed
  - 4.2 – Digital-specific guidance provided
  - 4.3 – No unique guidance needed
  - 4.4 – No unique guidance needed
  - 4.5 – Digital-specific guidance provided
  - 4.6 – Digital-specific guidance provided
  - 4.7 – No unique guidance needed
  - 4.8 – No unique guidance needed

## Section 4.2 – Malfunction Likelihood

- Overview
  - Discusses “Level of Detail”
  - Emphasizes the need to meet or comply with all applicable industry standards
  - Addresses malfunctions due to software

## Section 4.5 – Different Accident

- Overview
  - Reiterates the two focus areas: **Credible** and **Bounding**
  - Emphasizes the assumption of only one accident at a time
  - Discusses CCF impacts
  - Highlights the difference between meeting safety analysis “acceptance criteria” and answering the question
  - Discusses HSI impacts

## Section 4.6 – New Result

- Overview
  - Reiterates the two approaches: *Initiator* and *Result*
  - Discusses “credible”
  - Discusses malfunctions as accident initiators
  - Highlights the difference between meeting safety analysis “acceptance criteria” and answering the question
  - Discusses different failure types to consider
  - Lists “Other Factors to Consider”