

February 24, 2014

MEMORANDUM TO: Anthony J. Mendiola, Chief
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Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

FROM: Joseph J. Holonich, Senior Project Manager /RA/
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SUBJECT: SUMMARY OF JANUARY 8, 2014, MEETING ON NUCLEAR ENERGY
INSTITUTE (NEI) GUIDANCE DOCUMENT NEI-01-01, "GUIDELINE ON
LICENSING DIGITAL UPGRADES: EPRI [ELECTRICAL POWER
RESEARCH INSTITUTE] TR [TECHNICAL REPORT]-102348,
REVISION 1, NEI 01-01: A REVISION OF EPRI TR-102348 TO
REFLECT CHANGES TO THE 10 CFR [TITLE 10 OF THE CODE OF
FEDERAL REGULATION] 50.59 RULE"

On January 8, 2014, staff from the U.S. Nuclear Regulatory Commission (NRC) held a meeting with representatives from the Nuclear Energy Institute (NEI) and industry. The meeting was one in a series of meetings to discuss staff concerns with NEI 01-01, "Guideline on Licensing Digital Upgrades: EPRI [Electric Power Research Institute] TR [Technical Report]-102348, Revision 1, NEI 01-01: A Revision of EPRI TR-102348 To Reflect Changes To The 10 CFR 50.59 Rule" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML020860169). Regulatory Information Summary (RIS) 2002-22, "Use of EPRI/NEI Joint Task Force Report, 'Guideline on Licensing Digital Upgrades: EPRI TR-102348, Revision 1, NEI01-01: a Revision of EPRI TR-102348 to Reflect Changes to the 10 CFR 50.59 Rule'" (ADAMS Accession No. ML023160044), conditionally endorsed NEI 01-01.

A list of attendees at the meeting can be found in ADAMS Accession No. ML14015A081.

In its opening remarks, the NRC staff stated that since the issuance of Information Notice 2010-10, "Implementation of a Digital Control System under 10 CFR 50.59" (ADAMS Accession No. ML100080281), the NRC staff view was NEI 01-01 should be updated. Further, the NRC staff stated that it recognizes the industries efforts in this regard.

To help focus the discussions, the NEI representatives had an eight-slide presentation (Accession No. ML14008A005) to discuss Comments 5, 7, and 9 from the NRC letter to Mr. Anthony Pietrangelo of NEI dated November 5, 2013 (Accession No. ML13298A787).

In general, abstract discussions on the topic areas were held. The NRC staff expressed an interest in quickly getting to the details of the proposed wording, and therefore clearly demonstrating that progress was being made.

NEI representatives proposed the two common cause failure (CCF) analyses, susceptibility and coping, be performed sequentially. The NRC staff agreed with that approach but also proposed that NEI should consider two additional types of CCF analyses, applicability and bounding. In addition, the NRC staff pointed out that a rigidly defined sequence of analyses may not be optimal in all cases. In some cases, the NRC staff believes it may be easier to demonstrate adequate coping or bounding rather than to demonstrate a lack of susceptibility.

The industry was concerned that the fact that a CCF must be postulated for safety systems would mean that there will always be a malfunction of a different result because the answer to the question in the 10 CFR 50.59(c)(2)(vi) would be yes. That is to say, all digital modification would be understood by the NRC staff to require a license amendment request (LAR). The NRC staff pointed out that it is not optimal for the NRC to review all digital modifications and stated that some CCF malfunctions may be bounded by the results in the current accident analyses. This led to the suggestion for an explicit bounding analysis.

With respect to the 10 CFR 50.59(c)(2)(vi) question, "Does the Activity Create a Possibility for a Malfunction of an SSC Important to Safety with a Different Result?," the NRC staff cited NEI 96-07, Revision 1, "Guidelines for 10 CFR 50.59 Evaluations."

"An example of a change that would create the possibility for a malfunction with a different result is a substantial modification or upgrade to control station alarms, controls, or displays that are associated with SSCs important to safety that creates a new or common cause failure that is not bounded by previous analyses or evaluations."

The NRC staff further noted that there appears to be no consensus agreement on what "a substantial modification or upgrade" would be. The NRC cited NEI 01-01:

"Software Common Cause Failures. Engineering evaluation of quality and design processes determine if there is a reasonable assurance that the likelihood of failure to software is sufficiently low...Results of this evaluation are then used to determine whether failures due to software, including common cause failures, should be considered further in the 10 CFR 50.59 evaluation. If there is reasonable assurance that the likelihood of failure due to software is sufficiently low, then upgrade would not require prior NRC review on the basis of software common cause failure..."

Because NEI 01-01 "supplements the guidance contained in NEI 96-07, Revision 1," the NRC staff indicated the licensee should address both of these quoted clauses. However, the NRC staff noted it appears that there is no consensus standard on how to address both clauses. Part of the difficulty arises because the analysis assumptions and acceptance criteria for "accident analysis" and "diversity and defense-in-depth (D3) analysis" are different.

In response to the discussions held at the meeting, the industry proposed that licensing criteria be addressed in NEI 01-01 and that detailed technical criteria could be addressed elsewhere. The NRC staff will give this suggestion further consideration.

Action Items from the meeting were:

- 1) Industry will docket a proposed schedule for discussion at the March meeting.
- 2) Industry will propose wording for discussion at the May meeting.
- 3) The NRC staff will provide at the next meeting the regulatory interpretation that would allow some digital modification to be done without a LAR.

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**ADAMS Accession Nos.: Package (ML13345A311); Summary (ML14015A088);
Notice (ML13337A154)**

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